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CURIOSITIES
OF
MEDICAL EXPERIENCE.

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Homo sum : humani nihil à me alienum puto.—TERENCE.

IN TWO VOLUMES.

VOL. II.

LONDON :
RICHARD BENTLEY, NEW BURLINGTON STREET,
Publisher in Ordinary to His Majesty.

1837.

LONDON:
PRINTED BY SAMUEL BENTLEY,
Dorset-Street, Fleet Street.



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CURIOSITIES

OF

MEDICAL EXPERIENCE.

MANDRAGORE.

SELF-STYLED wandering Turks and Armenians are frequently met with in crowded cities vending rhubarb, tooth-powder, and various drugs and nostrums, exciting the curiosity of the idlers that group around them by exhibiting a root bearing a strong resemblance to the human form. This is the far-famed mandragore, of which such wonderful accounts have been related by both ancients and moderns.

This plant is the *Atropa Mandragora* of Linnaeus, and grows wild in the mountainous and shaded parts of Italy, Spain, and the Levant, where it is also cultivated in gardens. The root bears such a likeness, at least in fancy's eyes, to our species, that it was called *Semi-homo*. Hence says Columella,

Quamvis semihominis vesano gramine foeta
Mandragora pariat flores mœstamque cicutam.

The word *vesano* clearly refers to the supposed power it possessed of exciting delirium. It was also named *Circæa*, from its having been one of the mystic ingredients employed in Circe's spells; although the wonderful mandragore was ineffectual against the more powerful herb the *Moly*, which Ulysses received from Mercury. This human resemblance of the root, which is moreover of a blackish hue and hairy, inspired the vulgar with the idea that it was nothing less than a familiar *dæmon*. It was gathered with curious rites: three times a magic circle was drawn round it with a naked sword; and the person who was daring enough to pluck it from the earth was subject to manifold dangers and diseases, unless under some special protection; therefore it was not unusual to get it eradicated by a dog, fastened to it by a cord, and who was whipped off until the precious root was pulled out. According to Josephus, the plant called *Buaras*, which was gifted with the faculty of keeping off evil spirits, was obtained by a similar canine operation. Often, it was asserted, did the mandragore utter piteous cries and groans, when thus severed from mother earth. Albertus the Great affirms that the root has a more powerful action when growing under a gibbet, and is brought to greater perfection by the nourishing secretions that drop from the criminal's dangling corpse.

Amongst its many wonderful properties it was

said to double the amount of money that was locked up with it in a box. It was also all-powerful in detecting hidden treasures. Most probably the mandragore had bad qualities to underrate its good ones. Amongst these we must certainly class the blackest ingratitude, since it never seemed to benefit the eloquent advocates of its virtues, who in general were as poor as their boasted plant was rich in attraction.

It was also supposed to possess the delightful faculty of increasing population and exciting love; and the Emperor Julian writes to Calixines that he is drinking the juice of mandragore to render him amorous. Hence was it called *Love-apple*; and Venus bore the name of *Mandragontis*. It has been asserted by various scholiasts that the *mandrake* which Reuben found in the fields and carried to his mother Leah was the mandragore; but the *Dudaïm* which he gathered was not, according to all accounts, an unpleasant fruit, but is supposed to have been a species of orchis, still used in the East in love-philters and prolific potions. The word *Dudaïm* seems to express a tuberculated plant; and in Solomon's Songs he thus describes it: "The mandrakes give a smell, and at our gates are all manner of pleasant fruits, new and old, which I have laid up for thee, O my beloved." Now it is utterly impossible, whatever may have been the revolution in taste since the days of Solomon, that the nauseous and offensive

mandragore could have been considered as a propitiating present to a lady.

The etymology of the word *Dudaïm* would seem to describe it. It is derived from the word דדים, (*Dadim*) breasts, or דודים, (*Dodim*) friends, neighbours, twins; which indicates that this plant is formed of two similar parts. It is thought that the *Dudaïm* might be the highly-scented melon which is cultivated in the East, especially in Persia, and known by the name of *Destenbuje*, or the *Cucumis Dudaïm* of Linnæus, and which is also found in Italy, where its powerful aroma is imparted to garments and chambers. It must have been an odoriferous production, since in the *Talmud* we find it denominated *Siglin*, which has been considered the jessamine or the lily. The orchis is remarkable for its double bulbous roots and its agreeable perfume; we may therefore justify the idea that the *Dudaïm* of the Jews was a species of this plant.

Frontinus informs us that Hannibal employed mandragore in one of his warlike stratagems, when he feigned a retreat, and left in the possession of the barbarians a quantity of wine in which this plant had been infused. Intoxicated by the potent beverage, they were unable to withstand his second attack, and were easily put to the sword. Was it the mandragore that saved the Scotch in a similar *ruse de guerre* with the Danish invaders of Sweno? It is supposed to

have been the *Belladonna*, or deadly night-shade, the effects of which are not dissimilar to those of the plant in question.

In the north of Europe this substance is still used for medicinal purposes ; and Boerhaave, Hoffberg, and Swediaur have strongly recommended it in glandular swellings, arthritic pains, and various diseases where a profuse perspiration may be desirable.

Machiavel has made the fabulous powers of the mandragore the subject of a comedy, and Lafontaine has employed it as an agent in one of his tales.

Another root that excited superstitious phantasies and reverential awe, from its supposed resemblance to the human form, was the Gin-seng, a Chinese production, which, according to the author of the *Kao-li-tchi-tsan*, or Eulogium of the Kingdom of Corea, “imitates the configuration of man and the efficacy of spiritual comfort, possessing hands and feet like a human being, and the mental virtues that no one can easily comprehend.” According to Jartoux, *Gin-seng* signifies “the representation of man.” It appears, however, that the learned father was in error. *Jin*, it is true, signifies *man* ; but *Chen* does not mean representation, but a *ternary body*. Hence *Gin-seng* signifies the *ternary of man, making three with man and heaven* !—no doubt some superstitious tradition, since this root bears various names in other

countries, that plainly denote the veneration in which it was held. In Japan it is called *Nindsin*, and *Orkhoda* in the Tatar-Mandchou language, both of which mean "the queen of plants." Father Lafitau informs us that the name of *Garent-oguen* of the Iroquois, which it also bears, means the *thighs of man*. The *Gin-seng* is a native of Tartary, Corea, and also thrives in Canada, Virginia, and Pennsylvania in shaded and damp situations, as it soon perishes under the solar rays. The Chinese attach considerable value to it. Thunberg informs us that it sometimes fetches forty pounds a pound; and Osbeck states that in his time it was worth twenty-four times its weight in silver. This enormous price frequently induced foreign smugglers to bring it into the Chinese territory; but the severest laws were enacted to punish this fraudulent traffic. The Tartars alone possess the privilege of cultivating and collecting it; and the districts that produce this precious plant are surrounded with palisades, and strictly guarded. In 1707, the Emperor of China, to increase his revenue, sent a body of ten thousand troops to collect the gin-seng. According to the Chinese physicians, this root possesses the faculty of renovating exhausted constitutions, giving fresh vigour, raising the drooping moral and physical faculties, and restoring to health and *embonpoint* the victim of debauchery. It is also said that a bit of the root chewed by a man running a race will prevent his

competitor from getting the start of him. It is somewhat singular that the same property is attributed to garlic; and the Hungarian jockeys frequently tie a clove of it to their racers' bits, when the horses that run against them fall back the moment they breathe the offensive odour. It has been proved that no horse will eat in a manger if the mouth of any other steed in the stable has been rubbed with the juice of this plant. I had occasion to ascertain this fact. A horse of mine was in the same stall with one belonging to a brother officer; mine fell away and refused his food, while his companion thrived uncommonly well. I at last discovered that a German groom, who had charge of the prosperous animal, had recourse to this vile stratagem. It is also supposed that men who eat garlic knock up upon a march the soldiers who have not made use of it. Hence, in the old regulations of the French armies, there existed an order to prohibit the use of garlic when troops were on a march.

BARBER-SURGEONS,

AND THE PROGRESS OF CHIRURGICAL ART.

No consideration should render man more thankful to his Creator, and justly proud of the progress of human intellect, than the perfection to which the art of surgery has been carried. In its present improved condition we are struck with horror at the perusal of the ancient practice, and marvel that its barbarity did not sooner induce its professors to diminish the sum of misery it inflicted on their victims. Ignorance, and its offspring Superstition, seemed to sanctify this darkness. Improvement was considered an impious supererogation ; and to deny its powers (such as they were), heresy against the holy men, who alone were permitted to exercise the art of healing, and who were naturally hostile to any inquiry or investigation that could shed even a feeble ray of light on the obtuse intellects of their flock.

This supposed divine attribute of the priesthood can be traced to remote ages : Æsculapius was son of Apollo, and princes and heroes did not consider the art of surgery beneath their dignity. Homer has illustrated the skill of Podalirius and Chiron ; and Idomeneus bids Nestor to mount his

chariot with Machaon, who alone was more precious than a thousand warriors ; while we find Podalirius, wrecked and forlorn on the Carian coast, leading to the altar the daughter of the monarch whom he cured, and whose subjects raised a temple to his memory, and paid him divine honours.

Tradition informs us, that in the infancy of the art all its branches were exercised indiscriminately by the medical practitioners. It was not then supposed that the human body was subject to distinct affections, external and internal ; yet, as its study advanced, the ancients were led into an opposite extreme, and we find that in Egypt each disease became the province of a special attendant, regulated in his treatment by the sacred records handed down by their hierarchy.

By one of these singular anomalies in public opinion, this supposed divine science was soon considered an ignoble profession. In Rome it was chiefly practised by slaves, freed-men, or foreigners. From the overthrow of the Roman empire till the revival of literature and the arts in Europe, medicine and surgery sought a refuge amongst the Arabians, who studied both branches in common ; for, though exiled to Afric's coast in point of scientific cultivation, it was necessarily cultivated in other countries, and in the greater part of Europe became the exclusive right of ecclesiastics. In time, however, it was gradually wrested

from their hands by daily necessities ; and every one, even amongst the lowest classes, professed himself a surgeon, and the cure of the hurt and the lame was entrusted to menials and women.

As the church could no longer monopolise the art of healing, it became expedient to stigmatise it, although that very faculty had but lately been their boast ; but it had fallen within the powers of vulgar and profane comprehension, and therefore was useless to maintain sacerdotal pre-eminence. In 1163, the Council of Tours, held by Pope Alexander III, maintained that the devil, to seduce priesthood from the duties of the altar, involved them in mundane occupations, which, under the plea of humanity, exposed them to constant and perilous temptations. The edict not only prohibited the study both of medicine and law amongst all that had taken religious vows, but actually excommunicated every ecclesiastic who might infringe the decree. It appears, however, that the temptations of the evil one were still attractive, as Pope Honorius III, in 1215, was obliged to fulminate a fresh anathema on transgressors, with an additional canon, ordaining that, as the church abhorred all cruel or sanguinary practices, not only no priest should be allowed the practice of surgery, but should refuse their benediction to all those who professed it.*

* The priesthood's stigmatising the medical profession so soon as its practice ceased to be their exclusive privilege, dis-

The practice then fell into the hands of laymen, although priests, still regretting the advantages that it formerly had yielded them, were consulted in their convents or houses; and when patients could not visit them without exposing them to clerical censure, they asserted their ability to cure diseases by the mere inspection of the patient's dejections; and so much faith was reposed in this filthy practice, that Henry II. decreed that upon the complaints of the heirs of persons who

played the same spirit of intolerance and thirst for omnipotent sway that characterised their anathemas on the drama when they no longer were the authors, actors, and managers of their own sacrilegious plays, which they called mysteries and moralities. Previous to theatricals having become the pursuit of laymen, the monkish exhibitions had been deemed so holy, that one of the popes granted a pardon of one thousand days to every person who went to the plays performed in the Whitsun week, beginning with a piece called "The Creation," and ending the season with the performance of "The General Judgment." In these *burlettas* the performers belonged to various corporations, and acted under the direction of the clergy. "The Creation" was performed by the *Drapers*,—"The Deluge" by the *Dyers*,—"Abraham, Melchizedek, and Lot," by our friends the *Barbers*,—"The Purification" by the *Blacksmiths*,—"The Last Supper" by the *Bakers*,—"The Resurrection" by the *Skinners*,—and "The Ascension" by the *Tailors*.

The following curious anecdotes are recorded in the description of a mystery performed at Veximel, near Metz, by the order of Conrad Bayer, bishop of the diocese. This play was called *The Passion*, and the part of the Saviour was played by an old gentleman of the name of Nicolas Neufchatel, of Touraine, curate of St. Victor, of Metz; and it appears that by some mismanagement he would have died upon the cross, had he not been timely assisted, for all the other actors had made

died through the fault of their physicians, the latter should suffer capital punishment, as having been the cause of their patient's death, unless they had carefully and scientifically *tasted* the morbid *samples* brought to their investigation by the deceased's relatives or domestics: and having duly ascertained the exact savour thereof, the priest proceeded to prescribe for the malady.

Unable to quit their cloisters, in surgical cases, which could not be so easily cured at a distance, sooner than lose the emoluments of the profession, they sent their servants, or rather the barbers of the community, who shaved, and bled, and drew teeth in their neighbourhood ever since the clergy could no longer perform these operations, on the plea of the maxim "*Ecclesia abhorret à sanguine*;" bleeding and tooth-drawing being, I believe, the only cases where this maxim was noticed. From this circumstance arose the barber craft or barber-surgeons.

These practitioners, from their various avocations, were necessarily dexterous; for, in addition to the skill required for good shaving, tonsurating

their exit and left him *solus*. Another priest, by name Jean de Nicey, curate of Métrange, played Judas, and he was also nigh meeting with an untimely end; for his neck had slipped and tightened the noose by which he was suspended to the tree, and, had he not been cut down, he would have performed the part most effectually.

A play was acted in one of the principal cities in England by these clerical performers, representing the terrestrial Paradise, when Adam and Eve made their entrance entirely naked.

the crowns of clerical heads was a delicate operation; and it was about this period that Pope Alexander III. revised the canon issued by the synod of Carthage respecting the tonsure of the clergy. Surgery thus degraded, the separation between its practice and that of medicine became unavoidable, and the two branches were formally made distinct by bulls of Boniface VI. and Clement V.

St. Louis, who had witnessed the services of surgeons in the field of battle during the crusades, had formed a college or *confrérie* of surgeons, in honour of St. Cosme and St. Damian, in 1268; and wounds and sores were dressed *gratis* in the churches dedicated to those saints on the first Monday of every month. To this body, of course, the barber-surgeons, or *fraters* of the priests, who had not received any regular education, did not belong. Hence arose the distinction, which even to the present day obtains in various parts of the Continent, where surgeons are divided into two classes,—those who had gone through a regular course of studies, and those who without any academical education were originally employed as the servants of the priests and barbers. So late as the year 1809, one of my assistants in the Portuguese army felt much hurt at my declining his offer to shave me; and in 1801, some British assistant-surgeons, who had entered the Swedish navy, were ordered to shave the ship's company, and

were dismissed the service in consequence of their refusal.

But to return to our barbers.—These ambitious shavers gradually attempted to glean in the footsteps of the regular chirurgeons, and even to encroach upon their domain, by performing more important operations than phlebotomy and tooth-drawing; therefore were the audacious intruders very properly brought up *ex officio* by the attorney-general of France, and forbidden to transgress the boundaries of their art, until they had been duly examined by master chirurgeons; although these said masters were not better qualified than many of the barbers. Such was their ignorance indeed, that Pitard, an able practitioner, who had successively been the surgeon of St. Louis, Philip the Brave, and Philip the Fair, obtained a privilege to examine and grant licences to such of these masters who were fit to practise, without which licence all practitioners were liable to be punished by the provost of Paris; and in 1372 barbers were only allowed to dress boils, bruises, and open wounds.

Although this account chiefly refers to France and its capital, yet the same distinction and division between surgeons and barbers prevailed in almost every other country; and privileges were maintained with as much virulence and absurdity as the present controversial bickerings between physicians and surgeons, to the manifest advantage of the most fearful class of practitioners, commonly

called "*general*," the Worshipful Company of Apothecaries, and all persons directly or indirectly interested in funeral speculations and expectations.

In 1355 these master surgeons constituted a faculty, which pocketed one half of the penalties imposed upon the unlucky wights who had not the honour of belonging to their body. They also enjoyed various immunities and exemptions ; amongst others, that of not keeping guard and watch in the city of Paris. To increase their emoluments, they granted as many honorary distinctions as they could in decency devise, and introduced the categories of bachelors, licentiates, masters, graduates, and non-graduates of surgery. And now do we find the medical faculty complaining of the encroachments of the master surgeons on their internal domain of poor mortality with as much bitterness as the masters complained of the impertinent invasion on the part of the confounded barbers of their external dominion. To court the powerful protection of the university against these interlopers, the surgeons consented to be considered as the scholars of the medical faculty, chiefly governed by clerical physicians.

In 1452 a fresh source of dissension arose amongst clerical physicians, lay physicians, master surgeons, and barbers. Cardinal Etoutville abolished the law which bound the physicians of the university to celibacy, when, to use the historian's

words, “ many of the clerical physicians, thinking there was more comfort to be found in a wife without a benefice than could be expected in a benefice without a wife, abandoned the priesthood, and were then permitted to visit their patients at their own houses.” Thus thrown into the uncontrolled practice of medicine, these physicians became jealous of the influence of the surgeons, to whom they had been so much indebted ; and they had recourse to every art and manœuvre that priestcraft could devise to oppress and degrade them. To aid this purpose, they had recourse to the barbers, whom they instructed in private, to enable them to oppose the master-surgeons more effectually. The surgeons, indignant at this protection, had recourse to the medical faculty, supplicating them to have the barbers shorn of their rising dignity. Thus for mere motives of lucre, and the evident detriment of society, did these intriguing practitioners struggle for power and consequent fees ; and, according to the vacillation of their interests, the barbers became alternately the allies of the physicians or the mercenary skirmishers of the surgeons.

Strange to say, from this oppression of surgery, for nearly three centuries it was considered a degrading art. Excluded from the university, not only were surgeons deprived of all academic honours and privileges, but subjected to those taxes and public burthens from which the mem-

bers of the university, being of the clerical order, were exempted. This persecution not only strove to injure them in a worldly point of view; but the priests carried their vindictive feelings to such a malignant height that when Charles IX. was about to confer the rites of apostolical benediction upon the surgeons of the long robe, the medical faculty interposed on the plea of their not being qualified to receive this benediction, as they did not belong to any of the four faculties of the university; and as the chancellor, or any other man, had not the power of conferring a blessing without the pope's permission and special mandate, both surgeons and barbers ought to be irrevocably damned. The apostolical benediction in those days was moreover considered of great value, since it exempted all candidates from examination in anatomy, medicine, surgery, or any other qualification, when they applied for a degree. In a great measure our two great universities confer academic dignities on the same principle, since the profession cannot be studied in their schools.

Amongst the many glaring absurdities which retarded the progress of medical studies, one cannot but notice the presumptuous claims of the physicians to the exclusive privilege of teaching surgery to their pupils, while anatomy was solely professed by surgeons, and not considered necessary in the instruction of a physician. All

these absurdities can be easily traced to that spirit of dominion, exclusion, and monopoly, which invariably characterised clerical bodies. To such a pitch was this destructive practice carried, that surgeons were only allowed to perform operations in the presence of one or more physicians: nor were they permitted to publish any work on their profession until it had been licensed by a faculty who were utterly ignorant of the matter which it treated. The celebrated Ambrose Paré could only obtain as a special favour from his sovereign, the permission to give to the world one of its most valuable sources of information.

So late as 1726 we find the medical faculty of Paris making a formal representation to Cardinal de Noailles and the curates of that capital to prevent surgeons from granting certificates of health or of disease, and this application was grounded on the pious motive of enforcing a more rigid observance of Lent! They further insisted that this indispensable mortification was eluded in consequence of the facility of obtaining certificates that permitted persons stated to be indisposed to eat animal food, eggs, and butter, whence infidelity was making a most alarming progress, and threatening the very existence of church and state, and the overthrow of every ancient and glorious institution. The faculty were formally thanked for their pious zeal in the true interests of religion, and the spiritual welfare of

their patients; and orders were affixed upon the door of every church, anathematising all certificates that emanated from the unholy hands of surgeons and barbers.

These unfortunate barbers, although they humbly submitted to the sway of both physicians and surgeons when it suited their purpose, were in turn persecuted by both their allies and alternate protectors; so much so, that the clerical practitioners at one time prohibited their bleeding, and conferred this privilege upon the bagnio-keepers. From the well-known nature of these establishments, various may be the reasons that led to this patronage, which was clearly an attempt to qualify bagnio-keepers to extend their convenient trade.

At last, in the year 1505, barbers were dignified with the name of surgeons. Their instructions were delivered in their vernacular tongue, until the university again interfered, and ordered that lectures should be delivered in Latin; once more closing alma-mater against illiterate shavers, who were, however, obliged to give a smattering of classical education to their sons destined to wield alternately the razor and the lancet. In 1655, surgeons and barber-surgeons were incorporated in one college; a union which was further confirmed, in 1660, by royal ordonnance, under some limitations, whereby the barbers should not assume the title of licentiates, bachelors, or pro-

fessors, nor be allowed to wear the honourable gown and bonnet that distinguished the higher grades of learning. Red caps were in former times given by each barber to his teacher on his being qualified, and gloves to all his fellow-students.

Thus do we find that the high state of perfection that the surgical art has attained is solely due to the efforts of industry to free itself from the ignoble trammels of bigotry and prejudice. Intellectual progress has invariably been opposed in every country by those powerful and interested individuals who derived their wealth and influence from the ignorance of society. Corporate bodies monopolizing the exercise of any profession will invariably retard instruction and shackle the energies of the student. It is, no doubt, indispensable that the practice of medicine in all its branches should only be allowed to such persons as are duly qualified; but whenever pecuniary advantages are derived from the grant of the permission, abuses as dishonourable as they are injurious to society will infallibly prevail. In Britain the period of study required in medical candidates is by no means sufficient. Five or six years is the very lowest period that should be insisted on; and, when duly instructed, degrees and licences should be conferred without fee or reward, on all applicants, by a board of examiners unprejudiced and disinterested. This mode of granting licences would add to the respect-

ability of the profession, while it would ensure proper attendance to the public. Physicians and surgeons would then become (what to a certain extent the latter are at present, though illegally as far as the laws of the college go,) general practitioners, and society would no longer be infested by the swarms of practising apothecaries, who, from the very nature of their education, can only be skilled in making up medicines, or who must have obtained experience in the lessons taught by repeated failures in their early practice, unless perchance they have stepped beyond the usual confined instruction of their class. The consequences that arise from this fatal system are but too obvious. These men live by selling drugs, which they unmercifully supply, to the material injury of the patient's constitution. If, after ringing all the changes of their *materia medica* without causing the church-bell to toll, they find themselves puzzled and bewildered, a physician or a surgeon of some eminence is called in, and too frequently these practitioners are bound by tacit agreement not to diminish the revenue that the shop produces. If it were necessary to prove the evils that result from the monopolizing powers vested in corporate institutions, the proof might be sought and found in the virulence and jealousy which they evince in resisting reform, from whatever quarter it may be dreaded; and it may be said that too many of the practising apotheca-

ries of the present day stand in the same relative situation in the medical profession as the barbers of olden times.

This faculty of exercising every branch of the profession, however qualified, is of olden date, and we find on the subject the following lines in the writings of Alcuin in the time of Charlemagne :

Accurrunt medici mox Hippocratica tecta :
Hic venas findit, herbas hic miscet in olla ;
Ille coquit pultes, alter sed pocula perfert.

ON DREAMS.

DISQUISITIONS the most learned have long displayed philosophical ingenuity in endeavouring to account for the nature of these phenomena. The strangeness of these visionary perturbations of our rest—their supposed influence on our destinies—their frequent verification by subsequent events—have ever shed a mystic *prestige* around them ; and superstition, ignorance, and craft have in turns characterised them as the warnings of the Divine will, or the machinations of an evil spirit.

Macrobius divided them into various categories. The first, the mere *dream*, *somnium*, he considers a figurative and mysterious representation that requires to be interpreted. Dion Cassius gives an example of this in the case of Nero, who dreamt that he saw the chair of Jupiter pass into the palace of Vespasian, which was considered as emblematical of his translation to the empire.

The second distinction he terms a *vision*, *visio*, or a foreboding of future events. The third he deemed *oracular*, *oraculum*, and this was the case

when a priest, or a relative, a deity, a hero, or some venerable person, denounced what was to happen, or warned us against it. As an example of this inspiration, for such it was considered, an anecdote of Vespasian is related. Having heard that a man in Achaia had dreamt that a person unknown to him had assured him that he should date his prosperity from the moment Nero should lose a tooth,—a tooth just drawn from that emperor being shown to him the following day, he foresaw his destinies: soon after Nero died, Galba did not long survive him, and the discord that reigned between Otho and Vitellius ultimately placed the diadem on his brow. These inspirations were considered by Cicero, and various philosophers, as particularly appertaining to the shrine of the gods; those who sought that heavenly admonition were therefore recommended to lie down in temples. The Lacedæmonians sought slumber in the temple of Pasithea; Brizo, the goddess of sleep and dreams, was worshipped at Delos, and her votaries slept before her altars with their heads bound with laurel and other fatidical symbols; hence divination by dreams was called *Brizomantia*. Supplications were offered up to Mercury for propitious visions, and a caduceus was placed for that purpose at the feet of beds; hence was it called ἐγμῆς.

The fourth division was *insomny*, *insomnium*, which was characterised by a disturbed repose,

caused either by mental or bodily oppression, or solicitude. The fifth class of dreams was the *phantasm* or *visus*, which takes place between sleeping and waking, in a dozing and broken slumber, when the person thinks himself awake, and yet beholds fantastic and chimerical figures floating around his couch. Under this class is placed the *ephialtes*, or night-mare. Macrobius represents the phantasm and the insomnium as little deserving of attention, being of no use in divination and prediction.

When these notions prevailed, interpretation of dreams became a profitable trade; and it is a lamentable truth, that, to the present day, it is considered a speculation upon credulity. We find in Plutarch's Life of Aristides that there were tables drawn out for this purpose; and he speaks of one Lysimachus, a grandson of Aristides, who gained a handsome livelihood by this profession, taking up his station near the temple of Bacchus. Rules of interpretation were formed by Artemidorus, who lived in the reign of Antoninus Pius, and he drew his conclusions from circumstances considered either propitious or sinister. Thus, to dream of a large nose, signified subtlety; of rosemary or sage, trouble and weakness; of a midwife, disclosure of secrets; of a leopard, a deceitful person. These interpretations became so multiplied that at last it was decreed that no dreams which related to the pub-

lic weal should be regarded, unless they had visited the brains of some magistrates, or more than one individual. But what limits can any enactment assign to the influence of credulity and superstition! Cicero informs us that the Consul Lucius Julius repaired to the temple of Juno Sospita, in obedience to a decree of the senate regarding a dream of Cæcilia, daughter of Balearicus. In more modern times we have often seen dreams resorted to, to assist the speculations of policy and priestcraft; some of them as absurd in their nature as revolting in their interpretation. Monkish records relate that St. Bernard's mother dreamed that she had a little white dog barking about her, which was interpreted to her by a religious person as meaning "that she should be the mother of an excellent dog indeed, who should be the hope of God's house, and would incessantly bark against its adversaries, for he should be a famous preacher, and cure many by his medicinal tongue." Our Archbishop Laurence, to whom we owe the church of Our Lady at Canterbury, was about to emigrate to France under the discouragement of persecution, until warned in a dream, and severely scourged by St. Peter for his weakness. It was on the relation not only of this dream, but on actually exhibiting the marks of the stripes he had received, that Eadbald was baptized, and became a protector of the church. It was in

a dream of this description that St. Andrew instructed Peter Pontanus how to find out the spear that had pierced our Saviour's side, and which was hidden somewhere near Antioch. Antioch was at that time besieged by the Persians, and half famished ; but this weapon being carried by a bishop, enabled the besieged to beleaguer Caiban, the Persian general.

The Peripatetics represented dreams as arising from a presaging faculty of the mind ; other sects imagined that they were suggestions of dæmons. Democritus and Lucretius looked upon them as spectres and simulacra of corporeal things, emitted from them, floating in the air, and assailing the soul. A modern writer, Andrew Baxter, entertained a notion somewhat similar, and imagined that dreams were prompted by separate immaterial beings, or spirits, who had access to the sleeper's brain with the faculty of inspiring him with various ideas. Burton divides dreams into natural, divine, and dæmoniacal ; and he defines sleep, after Scaliger, as " the rest or binding of the outward senses, and of the common sense, for the preservation of body and soul."

Gradually released from the trammels of superstition, modern philosophers have sought for more plausible explanations of the nature and causes of dreams, but perhaps without having attained a greater degree of certainty in this difficult question than our bewildered ancestors. Wolfius is

of opinion that every dream originates in some sensation, yet the independent energies of the mind are sufficiently displayed in the preservation of the continued phantasms of the imagination. He maintains that none of these phantasms can prevail unless they arise from this previous sensation. De Formey is of the same opinion, and conceives that dreams are supernatural when not produced by these sensations. But of what nature are these sensations? Are they corporeal impressions received prior to sleep, and the continuances of reflection, or are they the children of an idle brain? Although it is not easy to trace an affinity between the subjects of our dreams and our previous train of thought, yet it is more than probable that dreams are excited by impressions experienced in our waking moments, and retransmitted to the sensorium, however difficult it may be to link the connexions of our ideas, and trace their imperceptible catenation. Moreover, there does not exist a necessary and regular association in the state of mind that succeeds any particular impressions. These impressions only predispose the mind to certain ideas, which act upon it with more or less subsequent energies, and with more or less irregularity, according to the condition the predisposing causes have left it in. It has been observed that we seldom dream of the objects of our love or our antipathies. Such dreams may not be the natural results of such

sentiments. We may fondly love a woman, and in our dreams transfer this soft sensation of fondness to another individual,—to a dog that fondles us, or any other pleasing object. We may have experienced fear—in a storm at sea; yet we may not dream of being tossed about in a boat, but of being mounted upon a runaway horse who hurries us to destruction, or of flying from a falling avalanche. Our mind had been predisposed by fear to receive any terrific impression, and most probably these alarming phantasms will be of a chimerical and an extravagant nature. A man who has been bitten by a dog may fancy himself in the coils of a boa constrictor. When dreaming, the mind is in an abstracted state; but still is its reciprocal influence over the body manifest, although it is powerless on volition. Vigilance in sleep is still awake; but her assistance is of no avail until the connexion between mind and body is aroused by any alarm from external agents. It is well known that a hungry man will dream of an ample repast. A patient with a blister on his head has fancied himself scalped by Indians in all their fantastic ornaments. Somnambulism clearly proves that the mind retains its energies in sleep. Locke has justly observed that dreams are made up of the waking man's ideas, although oddly put together. Hartley is of opinion that dreams are nothing but the reveries of sleeping men, and are deducible from the impressions and

ideas lately received, the state of the body, and association. I have endeavoured to explain, on the ground of the general effects of predisposition, the anomalies which so often are displayed in these associations. Of the surprising powers of the mind in somnambulism we have many instances too well authenticated to be doubted. Henricus ab Heeres was in the habit of composing in his sleep, reading aloud his productions, expressing his satisfaction, and calling to his chamber-fellow to join in the commendation. Cælius Rhodiginus, when busied in his interpretation of Pliny, could only find the proper signification of the word *ectrapali* in his slumbers. There is not the least doubt but that the mind is capable of receiving impressions of knowledge, but more particularly inspirations of genius, when the body is lulled in a state of apparent repose. Dreams have been ingeniously compared to a drama defective in the laws of unity, and unconnected by constant anachronisms. Yet certain incoherences are not frequent: Darwin has justly remarked that a woman will seldom dream that she is a soldier, and a soldier's visions will seldom expose him to the apprehensions of child-birth. Buffon has truly observed, "We represent to ourselves persons whom we have never seen, and such as have been dead for many years; we behold them alive and such as they were, but we associate them with actual things, or with persons of other times.

It is the same with our ideas of locality ; we see things not where they were, but elsewhere, where they never could have been."

Dugald Stewart has endeavoured to account for these phenomena by the doctrine that in sleep the operations of the mind are suspended, and that therefore the cause of dreams is the loss of power of the will over the mind, which in the waking condition is subject to its control. Now, if this be the case, dreams must consist of mental operations independent of the will. However, it is not the suspension of the will and of the powers of volition that alone constitutes sleep ; it is the suspension of the powers of the understanding,—attention, comparison, memory, and judgment. It is in consequence of this suspension of all our active intellectual faculties that we never can *will* during our dreams ; in that state there appears to be a resistance of the powers of volition, with which the mind struggles in vain, and which is expressed both by moans, and the character of the sleeper's every feature, which portrays a state of anguish and impatience. In all dreams that are not of a morbid nature, every action is passive, involuntary. This state is widely different from delirium, in which the brain is in a morbid state of excitement ; and the body is more susceptible than usual of external agency, while the mind is perplexed by hallucinations of an erroneous nature.

Dr. Abercrombie considers insanity and dreaming as having a remarkable affinity when considered as mental phenomena; the impressions in the one case being more or less permanent, and transient in the other. Somnambulism he considers an intermediate state. Dreams, according to his theory, are divided into four classes: the first, when recent events and recent mental emotions are mixed up with each other, and with old events, by some feeling common to both; the second class relates to trains of images brought up by association with bodily sensations; the third, the result of forgotten associations; and the fourth class of dreams contains those in which a strong propensity of character, or a strong mental emotion, is embodied in a dream, and by some natural coincidence is fulfilled. The following interesting cases that fell under Dr. A.'s immediate notice, illustrate his views and the above classification.

Regarding the first class, Dr. A. relates the following: "A woman, who was a patient in the clinical ward of the infirmary of Edinburgh, under the care of Dr. Duncan, talked a great deal in her sleep, and made numerous and very distinct allusions to the cases of other sick persons. These allusions did not apply to any patients who were in the ward at the time; but, after some observation, they were found to refer correctly to the cases of individuals who were there when this

woman was a patient in the ward two years before."

The following is an instance of phantasms being produced by our associations with bodily sensations, and tends to show how alive our faculties continue during sleep to the slightest impressions :

The subject of this observation was an officer in the expedition to Louisburg in 1758, who had this peculiarity in so remarkable a degree, that his companions in the transport were in the constant habit of amusing themselves at his expense. They could produce in him any kind of dream by whispering in his ear, especially if this was done by a friend with whose voice he had become familiar. One time they conducted him through the whole progress of a quarrel, which ended in a duel ; and when the parties were supposed to have met, a pistol was put into his hand, which he fired, and was awakened by the report. On another occasion they found him asleep on the top of a locker in the cabin, when they made him believe he had fallen overboard, and exhorted him to save himself by swimming. They then told him that a shark was pursuing him, and entreated him to dive for his life. He instantly did so, and with so much force as to throw himself from the locker upon the cabin floor, by which he was much bruised, and awakened of course. After the landing of the army at Louisburg, his friends found

him one day asleep in his tent, and evidently much annoyed by the cannonading. They then made him believe that he was engaged, when he expressed great fear, and showed an evident disposition to run away. Against this they remonstrated, but at the same time increased his fears by imitating the groans of the wounded and the dying; and when he asked, as he often did, who was hit, they named his particular friends. At last they told him that the man next himself in his company had fallen, when he instantly sprung from his bed, rushed out of the tent, and was roused from his danger and his dream by falling over the tent-ropes. A remarkable thing in this case was, that after these experiments he had no distinct recollection of his dreams, but only a confused feeling of oppression or fatigue, and used to tell his friends that he was sure they had been playing some trick upon him. It has been observed that we seldom feel courageous or daring in our dreams, and generally avoid danger when menaced by a foe, or exposed to any probable peril.

The third class of dreams relates to the revival of forgotten associations. The person in question was at the time connected with one of the principal banks in Glasgow, and was at his place at the tellers' table, where money is paid, when a person entered demanding payment of a sum of six pounds. There were several people waiting, who

were in turn entitled to be attended to before him ; but he was remarkably impatient and rather noisy, and being besides a remarkable stammerer, he became so annoying, that another gentleman requested him to pay the money and get rid of him. He did so accordingly, but with an expression of impatience at being obliged to attend to him before his turn, and thought no more of the transaction. At the end of the year, which was eight or nine months after, the books of the bank could not be made to balance, the deficiency being exactly six pounds. Several days and nights had been spent in endeavouring to discover the error, but without success, when my friend returned home much fatigued, and went to bed. He dreamt of being at his place in the bank, and the whole transaction of the stammerer, as now detailed, passed before him in all its particulars. He awoke under the full impression that the dream would lead him to the discovery of what he was so anxiously in search of, and on examination he soon discovered that he had neglected to enter the sum which he had thus paid.

The following singular dreams are examples of the fourth class. A clergyman had come to Edinburgh from a short distance in the country, and was sleeping at an inn, when he dreamt of seeing a fire, and one of his children in the midst of it. He awoke with the impression, and instantly left town on his return home. When he arrived in

sight of his house, he found it on fire, and got there in time to assist in saving one of his children, who in the alarm and confusion had been left in a situation of danger.

A gentleman in Edinburgh was affected with aneurism of the popliteal artery, for which he was under the care of two eminent surgeons, and the day was fixed for the operation. About two days before the appointed time, the wife of the patient dreamt that a favourable change had taken place in the disease, in consequence of which the operation would not be required. On examining the tumour in the morning, the gentleman was astonished to find that the pulsation had entirely ceased, and, in short, this turned out to be a spontaneous cure,—a very rare occurrence in surgical practice.

The following dream is still more remarkable. A lady dreamt that an aged female relative had been murdered by a black servant, and the dream occurred more than once. She was then so impressed by it, that she went to the house of the lady, and prevailed upon a gentleman to watch in an adjoining room during the following night. About three o'clock in the morning, the gentleman, hearing footsteps on the stairs, left his place of concealment, and met the servant carrying up a quantity of coals. Being questioned as to where he was going, he replied, in a hurried and confused manner, that he was going to mend his mistress's

fire, which at three o'clock in the morning, in the middle of summer, was evidently impossible; and, on farther investigation, a strong knife was found concealed beneath the coals.

Dreams, to whatever causes they may be attributed, vary according to the nature of our sleep: if it is sound and natural, they will seldom prevail; if, on the contrary, it be broken and uneasy, by a spontaneous association dreams will become fanciful, and might indeed be called visions, so fantastic and chimerical are all the objects that present themselves in motley groups to the disturbed mind. This derangement in the sensorium may be referred to various physical causes,—the sensations of heat or of cold, obstruction in the course of the circulation of the blood, as when lying upon the back, a difficult digestion. In a sound sleep our dreams are seldom remembered except in a vague manner; whereas, in a broken sleep, as Formey has observed, the impression of the dream remains upon the mind, and constitutes what this philosopher called “*the lucidity of dreams.*” It not unfrequently happens to us that we have had a similar dream several times, or at least we labour under this impression; nay, many persons fancy that particular events of their life at the moment of their occurrence had clearly taken place at a former period either in reality or in a dream. Morning “winged dreams” are more easily remembered in their cir-

cumstantial vagaries than those of the preceding night, for at that period (the morning) our sleep is not sound, and dreams become more lucid. These *revasseries*, as the French call them, are admirably described by Dryden :

A dream o'ertook me at my waking hour
This morn, and dreams they say are then divine,
When all the balmy vapours are exhal'd,
And some o'erpow'ring god continues sleep.

That we are more or less impressionable in our sleep is rendered evident by the facility with which even a sound sleeper is disturbed by the slightest noise : the sparkling of a fire, or the crackling produced by the wick of our night-lamp when coming into contact with the water in the glass, the sting of an insect, the slightest admission of a higher or lower temperature, will occasion a broken sleep and its dreams. It has been remarked that the sense of seeing is more frequently acted upon in dreams than that of hearing, and very seldom do we find our smell and taste under their influence. It is possible that this peculiarity may arise from the greater variety of impressions with which the sight is daily struck, and which memory communicates by association or re-transmission. Next to feeling, vision is the first sense brought into relation with external objects. When we hear noises, explosions, tumultuous cries, it is more than probable that our dreams partake of a delirious and morbid nature, or of sensorial or intel-

lectual hallucinations, in which the mind is actually diseased, and our perceptions become erroneous : then we speak loudly to others and to ourselves. When these hallucinations prevail after sleep, the invasion of mania may be apprehended.

Cabanis, in his curious investigations on the mind, has endeavoured to fix the order in which the different parts of our organisation go to sleep. First the legs and arms, then the muscles that support the head and back : the first sense that slumbers, according to his notions, is that of sight ; then follow in regular succession the senses of taste, smell, hearing, and feeling. The viscera fall asleep one after the other, but with different degrees of soundness. If this doctrine be correct, we may easily conceive the wild and strange inconsistencies of our dreams, during which the waking and the sleeping organs are acting and reacting upon each other.

Corporeal sensations and different organic actions frequently attend our dreams ; but these may be attributed to our mode of living, or the indulgence in certain unruly desires and conversations. That man and animals dream of the pursuits of the preceding day there can be no doubt : hence the line,

Et canis in somnis leporis vestigia latrat.

The effects of a heavy meal, more especially a supper, in disturbing our rest, was well known and recorded by ancient physicians ; and Crato tells

us “that the fittest time to repair to rest is two or three hours after supper, when the meat is then settled in the bottom of the stomach; and ’tis good to lie on the right side first, because at that side the liver doth rest under the stomach, not molesting any way, but heating him as a fire doth a kettle that is put to it. After the first sleep ’tis not amiss to lie upon the left side, that the meat may the better descend; and sometimes again on the belly, but never on the back.”

Our ancestors had recourse to various devices to procure sound sleep: Borde recommends a good draught of strong drink before going to bed; Burton, a nutmeg and ale, with a good potation of muscadine with a toast; while Ætius recommends a sup of vinegar, which, according to Piso, “*attenuat melancholiam et ad conciliandum somnum juvat.*” Oppression from repletion will occasion fearful dreams and the night-mare; and bodily sufferings, when exhaustion has brought on sleep, will also be attended with alarming and painful visions.

Levinus Lemnius recommended to sleep with the mouth shut, to promote a regular digestion by the exclusion of too much external air. The night-mare is admirably described in Dryden’s translation of Virgil:

And as, when heavy sleep has closed the sight,
The sickly fancy labours in the night,
We seem to run, and, destitute of force,
Our sinking limbs forsake us in the course:

In vain we heave for breath ; in vain we cry ;
 The nerves unbraced their usual strength deny,
 And on the tongue the falt'ring accents die. }

In the Runic theology it was regarded as a spectre of the night, which seized men in their sleep, and suddenly deprived them of speech and motion. It was vulgarly called witch-riding, and considered as arising from the weight of fuliginous spirits incumbent on the breast. *Somnus ut sit levis, sit tibi cæna brevis*, is the ancient axiom of our distich

That your sleep may be light,
 Let your supper be slight.

Notwithstanding this rule of health, it is nevertheless true that many persons sleep more soundly after a hearty supper ; and, most unquestionably, dreams are more frequent towards morning than towards the beginning of the night. In my opinion, I should apprehend that the sound sleep of supper-eaters is to be attributed to the narcotic nature of their potations more than the meal, although the *siesta* of southern countries would militate in favour of a contrary opinion.

When philosophers speak of dreams being mental operations independent of the will, they speak vaguely, for the operations of the mind when we are awake are too frequently uncontrolled by volition. Did we possess this power over our rebellious thoughts, who would constantly ponder on a painful subject ? Our thoughts cannot be sus-

pended at will, and their influence has been beautifully described by Shakspeare :

My brain I'll prove the female to my soul,
My soul the father ; and these two beget
A generation of still breeding thoughts.

Volition has no more power over thought when we are awake than sleeping ; and, despite all metaphysical and psychological speculations, it cannot be demonstrated that the mind does not retain its full energies during sleep, only they cease to be regulated by judgment, and are not, to use Locke's words, under the rule and conduct of the understanding ; and even on this opinion it has been fairly observed that much of incongruity which is supposed to prove suspension of reason, and much of the wild discordancy of representation which appears to prevail during our sleep, may arise from the defect of memory when we are awake, that does not retain the impression of images which have passed across the mind in light and rapid succession, and which, therefore, exhibit but a partial and imperfect sketch of the picture that engaged the attention in sleep. The well-known fact that the impressions of our dreams are oftentimes more vivid and correct when some time has elapsed than on our awakening, tends to confirm this hypothesis ; and these recollections are the more vivid when they bear any analogy to circumstances that come to pass.

Sir Thomas Brown was of opinion that sleep

was the waking of the soul; the ligation of sense, but the liberty of reason; and that our waking conceptions do not match the fancies of our sleep. He thus expresses himself in his *Religio Medici*: “At my nativity my ascendent was the watery sign of Scorpius; I was born in the planetary hour of Saturn, and I think I have a piece of that leaden planet in me. I am no way facetious, nor disposed for the mirth and galliardise of company; yet in one dream I can compose a whole comedy, behold the action, apprehend the jests, and laugh myself awake at the conceits thereof. Were my memory as faithful as my reason is then fruitful, I would never study but in my dreams, and this time also would I choose for my devotions; but our grosser memories have then so little hold of our abstracted understandings that they forget the story, and can only relate to our awaked souls a confused and broken tale of that, that hath passed.”

Dreams have been considered as prescriptive in various diseases. Diodorus Siculus relates that a certain Scythian dreamed that Æsculapius had drawn the humours of his body to one place, or head, to have it lanced. When Galen had an inflammation of the diaphragm, we are told that he was directed in a dream to open a vein between the thumb and the fourth finger,—an operation which restored him to health. Marcus Antoninus asserted that he learned in his dreams various re-

medies for spitting of blood. It is related of Sir Christopher Wren, that, when at Paris in 1671, being disordered with “a pain in his reins,” he sent for a physician, who prescribed blood-letting; but he deferred submitting to it, and dreamed that very night that he was in a place where palm-trees grew, and that a woman in a romantic habit offered dates to him. The next day he sent for dates, which cured him. Now, although this cure, brought about by a dream, was considered wonderful, its circumstances offer nothing supernatural. It is more than probable that Sir Christopher had frequently read, in foreign works on medicine, that dates were recommended as an efficacious remedy in nephritic complaints; and moreover met in his daily perambulations female quacks, who exhibit themselves to this day in the French metropolis, fantastically attired, and vending their far-famed nostrums. That he should have remembered dates, and that the phantasm of the she-mountebank might at the same time have struck his fancy, were two associations by no means improbable.

It is very likely that all the strange stories of prophetic dreams might be traced to a similar connexion of ideas. I have before observed that dreams do not always assume their complexion from recent occurrences, and our bodily sufferings during sleep bring to our recollection every circumstance that regards the ma-

lady. A patient who had a bottle of hot water placed at his feet dreamed that he was walking in great agony in the burning lava of Vesuvius. Similar associations exist when awake: the man whose arm has been amputated constantly refers the pain he experiences to the lost hand, or to that part of the limb which received the injury; and the very same nervous illusion prevails during his slumbers.

In various diseases the nature and the period of the invasion of dreams afford a valuable ground of observation to the physician both in his diagnosis and prognosis of the case. In incipient hydro-thorax, for instance, dreams occur the very moment the patient falls asleep, and he fancies himself suffocated by some impending and destructive weight. Diseases of the heart are accompanied by alarming dreams, from which the patient starts up in great terror. In children the perturbation of their sleep frequently indicates the seat of their sufferings; and the valuable researches on the nervous system by Charles Bell have enabled the medical attendant to read in the features of a sleeping infant whether the malady be in the head, the cavity of the chest, or the abdomen.

If proof were wanting that dreams arise from our waking thoughts, it might be found in the circumstance of those sleepers who divulge their secrets, and verify the lines of Shakspeare:

There are a kind of men so loose of soul,
That in their sleep will mutter their affairs.

Reason, therefore, prompts us to reject the idea of dreams being preternatural suggestions. In general, we may consider them as a morbid excitement of the brain, arising either from moral or physical causes, and depending essentially on the condition of our mind and body. Our most lively hopes are ever linked with fears that prey upon us even when most secure; and these apprehensions, recurring in our dreams, prove too often prophetic of the very events we dreaded. The prejudices of early education shed around these forewarnings circumstantial incidents; and fear is the greatest ally of superstition.

ON FLAGELLATION.

AMONGST the various moral and physical remedies introduced by priesthood and physicians for the benefit of society, flagellation once held a most distinguished rank. As a remedy, it was supposed to re-animate the torpid circulation of the capillary or cutaneous vessels, to increase muscular energy, promote absorption, and favour the necessary secretions of our nature. No doubt, in many instances, its action as a revulsive may be beneficial; and urtication, or the stinging with nettles, has not unfrequently been prescribed with advantage. As a religious discipline, for such has this system of mortification been called, it has been considered as most acceptable to Heaven; so much so, indeed, that the fustigation was commensurate with the sinner's offence. Under the head of Dæmonomania I have endeavoured to show that whipping was equally agreeable to the evil spirit, who delighted in flogging the elect.

It appears that at this period a belief prevailed that heavenly mercy restored the grace that had been forfeited, commuting for temporal punishment that which else would have been eternal.

The monks of Fonte Avellana, for instance, had decreed that thirty psalms said or sung, with an accompaniment of one hundred stripes to each psalm, would be considered as a set-off for one year of purgatory; and, by this calculation, the whole psalter, which would have demanded fifteen thousand stripes, would have procured a relief of five years from the fiery ordeal. It was no doubt under this impression that St. Dominic the Cuirassier, so named from his wearing day and night an iron cuirass next his skin, and which he never took off, having adopted this same covering when, upon entering into priest's orders, his parents presented the bishop who ordained him with a rich furred garment, an offence which the holy man wished to atone for by donning an iron vestment.

This said madman belonged to the congregation of Fonte Avellana, the monks of which never touched either wine or oil, and, during five days of the week, lived upon bread and water; moreover, every day after service they flogged each other. Dominic, in extenuation of his family's offence in having presented his diocesan with a luxurious gown, lashed himself at the rate of ten psalters, and thirty thousand lashes *per diem*; by which he calculated that he was redeeming three thousand six hundred and fifty years of purgatorial torments *per annum*: but, in addition to this wholesome allowance, he humbly petitioned his superior to allow him, during Lent, a supple-

mentary punishment of one hundred years, when his day's work was two psalters and a half, and thirty-four thousand five hundred lashes. This punishment did not seem sufficient in his eyes to propitiate the Creator ; and St. Pietro Damiano informs us that during the Lenten days he actually recited the psalter two hundred times, with a *crescendo* accompaniment of sixty millions of stripes. It was on this occasion that Yepes shrewdly observed that he marvelled less at a man's head being able to retain so many verses than his arm being able to carry on such a flagellation ; or, to use his own words, how his flesh, unless made of iron, could resist such a castigation : but this blessed man must have been endowed with powers that were increased by exertion, since we find that his ambition gave him such energy, that once beginning his operations in the evening, and singing and flogging, and flogging and singing, *con amore*, through the day and night, at the expiration of twenty-four hours he had gone through the psalms twelve times, begun them a thirteenth time, and proceeded as far as *Beati quorum*, the thirty-second psalm ; having inflicted upon himself one hundred and eighty-three thousand one hundred stripes, thereby reducing purgatorial stock to the amount of sixty-one years, twelve days, and thirty-three minutes, to a fraction.

It would be perfectly idle and absurd for any free-thinker to doubt this fact, recorded by an

eye-witness,—Pietro Damiano, a saint, and moreover a cardinal ; and Calmet himself maintains that no man should dare to doubt a saint's assertion, more especially when speaking of another beatified person. Notwithstanding this assertion, a stiff-necked arithmetician calculated that, if during these twenty-four hours the saint had given himself two blows every second, the number of lashes would only have amounted to one hundred and seventy-two thousand eight hundred, being ten thousand three hundred short of his bargain with Heaven ! However, this difficulty was overcome by Father Castaniza, who makes up the amount by maintaining that he made use of cats with ten tails, and therefore had actually a balance in his favour in his *winding-sheet*.*

Ubi stimulus ibi affluxus has been a physiologic axiom since the days of Hippocrates ; and flagellation thus employed is only a modification of blistering, or exciting the skin by any other irritating method. The moral influence of flagellation in the treatment of different diseases has been appreciated by the ancients : it was strongly recommended by the disciples of Asclepiades, by Cælius Aurelianus, and since by Rhasis and Valescus, in the treatment of mania. No doubt, the terror

* As this worthy never took off his cuirass, it may be shrewdly suspected that his lashes were such as our old friend Sancho Panca inflicted on the tree.

which this castigation inspires may tend materially to facilitate the management of the insane. To the present day this opinion has prevailed to a revolting degree, and it is no easy matter for the humane physician to convince a keeper of the cruelty or inutility of this practice ; yet seldom or never does this harsh management become necessary. I had charge of a military lunatic asylum for a considerable time, and, with one exception, never found myself warranted in causing corporal punishment to be inflicted, notwithstanding the association of ideas of discipline which such a chastisement must have produced amongst men, then exposed to the capricious infliction of the lash. The case I allude to was one of a Serjeant N—, who had twice attempted my life, and who fully remembered every circumstance in the remissions of his malady ; so much so, indeed, that doubts were entertained in the minds of the casual visitor as to the real condition of his mental faculties. To return from this digression : the authoritative power of man over the brute creation is daily witnessed, even with unruly and ferocious animals ; and there, no doubt, are cases where bodily punishment becomes indispensable, when the body will feel what the judgment cannot comprehend. Boerhaave relates the case of a hypochondriac who swore that his legs were made of straw ; but an officious servant-maid, who was sweeping the room, struck him across the shins

with her broomstick, and soon brought him to a sense of his erroneous impression.

Flagellation draws the circulation from the centre of our system to its periphery. It has been known in a fit of ague to dispel the cold stage. Galen had observed that horse-dealers were in the habit of bringing their horses into high condition by a moderate fustigation; and therefore recommended this practice to give *embonpoint* to the lean. Antonius Musa treated a sciatica of Octavius Augustus by this process. Elidæus Paduanus recommends flagellation or urtication when the eruption of exanthematic diseases is slow in its developement. Thomas Campanella records the case of a gentleman whose bowels could not be relieved without his having been previously whipped.

Irritation of the skin has been often observed to be productive of similar effects. The erotic irregularities of lepers is well authenticated; and various other cutaneous diseases, which procure the agreeable relief that scratching affords, have brought on the most pleasurable sensations. There exists a curious letter of Abelard to his Eloisa, in which he says, “*Verbera quandoque dabat amor, non furor; gratia, non ira; quæ omnium unguentorum suavitatem transcenderent.*”

This effect of flagellation may be easily referred to the powerful sympathy that exists between the nerves of the lower part of the spinal marrow

and other organs. Artificial excitement appears in some degree natural : it is observed in various animals, especially in the feline tribe. Even snails plunge into each other a bony and prickly spur that arises from their throats, and which, like the sting of the wasp, frequently breaks off and is left in the wound.

In the monastic orders of both sexes, flagellation became a refined art. Flagellation was of two species, the upper and the lower ; the upper inflicted upon the shoulders, the lower chiefly resorted to when females were to be fustigated. This mode was adopted, according to their assertions, from the accidents that might have happened in the upper flagellation, where the twisting lash might have injured the sensitive bosom. In addition to this device, nudity was also insisted upon. In the article *Dæmonomania* I have recorded various abominations of the kind. Nor was it only amongst religious orders and their followers that this custom obtained. It was practised by ladies of high rank amongst their commensals and attendants. Brantome gives us a curious and quaint account of this amusing castigation. Mademoiselle de Limeuil, one of the queen's maids of honour, was flagellated for having written a pasquinade, in company with all the young ladies who had been privy to the composition. And on another occasion he tells us : "J'ai ouï parler d'une grande dame de par le

monde, voire grandissime, mariée et veuve, qui faisait depouiller ses dames et filles, je dis les plus belles, et se délectait fort à les voir, et puis elle les battait du plat de la main, avec de grandes clacquades et blamuses assez rudes ; et les filles qui avaient délinqué en quelque chose, avec de bonnes verges, et elle les claquait ainsi selon le sujet qu'elles lui en donnaient, pour les faire ou rire ou pleurer."

The minions of Henri III. of France, and other princes, were decked in white robes, then stripped, and whipped in procession for the gratification of their royal masters. Not unfrequently the ladies themselves were the executioners in cases where any man had offended them ; and the adventure of Clopinel the poet is worth relating. This unfortunate wight had written the following lines on the fair sex :

Toutes êtes, serez, ou fûtes,
De fait ou de volonté, putes ;
Et qui bien vous chercherait
Toutes putes vous trouverait.

This libellous effusion naturally excited the indignation of the ladies at court, who decided that Clopinel should be flagellated by the plaintiffs without mercy ; and it is difficult to say to what extent they might have carried their vengeance but for a timely witticism of the culprit, who, piteously addressing the angry yet beautiful group around him with uplift arm and rod, humbly entreated that the first blow might be

struck by the honourable damsel who felt herself the most aggrieved. It is needless to add that not a lash was inflicted.

Medical men were frequently consulted as to the adoption of the upper or lower discipline, as flagellation on the shoulders was said to injure the eye-sight. It was from the fear of this accident that the lower discipline was generally adopted amongst nuns and female penitents, as appears by the following rule : “*Quippe cùm eâ de causâ capucini, multæque moniales, virorum medicorum ac piorum hominum consilio, ascetim flagellandi sursùm humeros reliquerint, ut sibi nates lumbosque strient asperatis virgis, ac nodosis funiculis conscribillent.*”

In a medicinal point of view, urtication, or stinging with nettles, is a practice not sufficiently appreciated. In many instances, especially in cases of paralysis, it is more efficacious than blistering or stimulating frictions. Its effects, although perhaps less permanent, are more general and diffused over the limb. This process has been found effectual in restoring heat to the lower extremities ; and a case of obstinate lethargy was cured by Corvisart by repeated urtication of the whole body. During the action of the stimulus, the patient, who was a young man, would open his eyes and laugh, but sink again into profound sleep. However, in three weeks his perfect cure was obtained.

ON LIFE AND THE BLOOD.

THE LIFE OF ALL FLESH IS THE BLOOD THEREOF. On this doctrine, expressed in the Mosaic books, many of the olden writers founded their hypothesis that blood was the principle of life. It is, however, more than probable that this opinion was derived from a more ancient ritual than the Levitical code, since we find a similar belief among the Parsees, Hindoos, and other Oriental nations of very remote antiquity, and who no doubt owed the practice of abstaining from blood to the early patriarchs.

The Greeks and the Romans, if we take the expressions of their poets as being conclusive, entertained similar notions regarding the vital fluid; and the “purple death” of Homer and “the purple life” of Virgil, are phrases evidently applicable to this theory, which Critias, Empedocles, and their sects maintained. This opinion, however, does not appear to have dictated the expressions made use of by Moses. When he says “the life of all flesh is the blood thereof,” it merely signifies that when the blood is abstracted death ensues;

a circumstance that must have been daily and hourly observed. It is probable that this injunction was promulgated to check the barbarous custom of devouring raw meat, which seems to have prevailed long before the Jewish legislator. We read in Genesis, ix. 4, "Flesh with the life thereof, which is the blood thereof, shall you not eat." From this circumstance we may infer that, like the Abyssinians of Bruce's time, the Jews were in the habit of tearing and cutting flesh from live animals. Saul's army was guilty of a similar practice. It therefore behoved their legislators to oppose a custom that increased the natural ferocity and cruelty of the nation they ruled.

This theory of the ancients has been frequently revived in modern times, and has not a little contributed to increase the mystery that veils the nature of our existence. Harvey, who discovered the circulation of the blood, was a convert to this doctrine; Hoffman also adopted it; and Huxham not only fully believed in it, but sought the immediate part of the blood that constituted life, and fancied that he had discovered it in its red particles. It was John Hunter, however, who first established the system on anything like a rational basis, although his arguments on the subject have led to much doubt and illiberal controversy. "The difficulty," says he, "of conceiving that blood is endowed with life while circulating, arises merely from its being a fluid, and the mind's

not being accustomed to the idea of a living fluid. I shall endeavour," he continues, "to show that organisation and life do not in the least depend upon each other; that organisation may arise out of living parts and produce action; but that life can never arise out of or produce organisation." The errors of this doctrine are obvious, and have led many ingenious physiologists into a maze of idle wandering. The fact is, that life is the instrument of organisation, or, in other words, organisation is the result of life. The embryo could not be developed, did not the fluid that animates it possess a principle of vitality which it communicates to a body previously organised. In this confusion the word "life" has sometimes been applied to the power, and at others to the result. Without organisation life cannot be transmitted; and the moment the principle of life ceases, a disorganisation more or less rapid ensues.

The Greeks had distinct appellations for this cause and result; the former they termed $\psi\upsilon\chi\eta$, the latter $\zeta\omega\eta$. The essential nature of life is, and most probably will ever remain, an impenetrable mystery. Living matter is endowed with a property which we call life; but to find out to what we may venture to attribute this property is a vain and hypothetical attempt. Equally vain and absurd have been the endeavours to ascertain whether life began at the creation to be subsequently transmitted from parent to offspring, or owed its

origin to a spontaneous generation from matter. Many ancient philosophers considered matter as eternal : such was the doctrine of the Pythagoreans ; amongst whom we must particularly notice Lucanus Ocellus, whose system, developed in a work written in the Attic dialect, was adopted by Aristotle, Plato, and Philo-Judæus. This work was first translated into Latin by Nogarola. These doctrines led to the unanswerable question, What was this matter—this *invisa materia*—from which everything visible has proceeded? Has it existed from all eternity, or has it been called into being by the Creator? Has it uniformly exhibited its present harmonious arrangement, or was it once a waste and shapeless chaos? Was this matter endowed with intelligence as a whole, or in its separate fractions?

The eternity of matter was maintained by these philosophers, from the belief that *no thing could be created out of nothing, and that no thing could ever return to nonentity*. Such was the doctrine of the Epicureans, of Democritus, and Aristotle. The poets were of the same belief ; and Lucretius expresses himself as follows :

Ubi viderimus nihil posse creari
De nihilo, tunc, quod sequimur, jam rectiùs inde
Perspiciemus.

Persius maintains the same idea :

Gigni
De nihilo nil, in nihilum nil posse reverti.

This dogma was no doubt transmitted to the Greeks from the East; and to the present day it is a doctrine of the Brahminical creed, clearly expressed in the following terms in their Yajur Veid: "The ignorant assert that the universe in the beginning did not exist in its author, and that it was created out of nothing. O ye, whose hearts are pure! how could something arise out of nothing?" The fathers of the church embraced a similar belief; and Justin Martyr says that "the word of God formed the world out of *unfashioned matter*. This Moses distinctly asserts, Plato and his adherents maintain, and ourselves have been taught to believe."

Such was the doctrine of the schools that professed the eternal nature of matter. Other philosophers supported as warmly a different opinion. Thales of Miletus, Zeno of Citium, Xenocrates, and Dicearchus the Messenian, insisted that the human race had a first origin, at a period when mankind did not exist. According to this hypothesis, the universe is an emanation or extension of the essence of the Creator. Zeno and the Stoicans attribute this creation to the universal elements of fire and water. Anaximander the Milesian asserted that the primitive animals were formed of earth and water mixed together, heated and animated by the solar rays; these aquatic creatures became amphibious, and were gradually transformed into the human races. Strange to say,

this extraordinary idea has found proselytes even in our days, and is advocated by Professor De Lamarck in his *Zoologic Philosophy*. This fancy pervades the poetry of the ancients. Homer makes Tethys, the wife of Ocean, the daughter of Uranus and Terra, the first parents ; and Hesiod, in his *Cosmogony*, raises Venus and Proteus from the foam of the sea.

The vital and intellectual fire of the ancients that animated all living beings was admitted by most of their physicians, especially by Hippocrates, Galen, and Aretæus. Aristotle describes an universal creative agent in all the elements, the source of life upon earth, and of the celestial movements in the firmament. Descartes, in modern times, maintained that a vital flame existed in the heart of every animal. This fire, and the genial warmth that it diffused, was considered the soul of the universe ; and on this subject Gassendi expresses himself as follows : “ *Si quis velit talem calorem etiam animam dicere, nihil est similiter quod vetet.*”

It was natural for man, even in an uncivilised state, to attribute to solar heat the same influence on animals as was manifest in its action upon plants. When life had fled, the inanimate corpse was cold, and caloric was therefore considered the principle of vitality. It was from this conviction that we find that the sun and fire were objects of adoration both in ancient times and amongst

savages to the present day. Fire is idolised by the Tartars, and various African tribes. The Yakouts, a Siberian horde, believe that the deity of good and evil has taken his abode in this supposed element. The Columbian Indians were fire-worshippers ; and Pallas informs us that the Chinese on the confines of Siberia held it in such religious respect, that they never attempted to extinguish it even when their dwellings were burning.

The doctrine of man and the universe having been created an emanation of the Creator, renders the Creator material, or matter itself ; matter being considered intelligent, and susceptible of this organisation. This was the belief of the Brahmins, and was no doubt transmitted to the Academic and Eleatic schools of Greece by Pythagoras. We find in the Yagur Veid, already alluded to, the following passages, that clearly demonstrate this belief : “ The whole universe is the Creator, proceeds from the Creator, and returns to him. The ignorant assert that the universe in the beginning did not exist in its author, and that it was created out of nothing. O ye, whose hearts are pure ! how could something arise out of nothing ? This first being alone, and without likeness, was the ALL in the beginning. He could multiply himself under different forms. He created fire from his essence, which is light.” And farther : “ Thou art Brahma ! thou art Vishnu ! thou art

Kodra! thou art the moon! thou art substance!
thou art Djam! thou art the earth! thou art the
world!"

These Brahminical doctrines were, beyond doubt, partaken by the Greeks. In a poem ascribed to the fabled Orpheus we find the following lines, translated by Mason Good with as much correctness as elegance:

Jove first exists, whose thunders roll above,
Jove last, Jove midmost; all proceeds from Jove.
Female is Jove—immortal Jove is male;
Jove the broad earth—the heavens' irradiate pale.
Jove is the boundless spirit, Jove the fire,
That warms the world with feeling and desire;
The sea is Jove, the sun, the lunar ball;
Jove king supreme, the sovereign source of all.
All power is his; to him all glory give,
For his vast form embraces all that live.

It may be easily imagined that a subject so recondite and obscure must have led philosophers into the wildest speculations. By some, life was considered as the result of a general consent or harmony between the different organs of which the vital frame is formed; while, as we have seen, many have attributed its phenomena to the blood. That blood, to a certain extent, is endowed with vitality is beyond a doubt; Hunter has endeavoured to prove the fact by various experiments. It is capable of being acted upon and contracting like the solid fibres; this we daily witness when blood is coagulated and comes into contact with

the atmosphere. It preserves an equality of temperature in whatever medium an animal may move. He also has shown that this fluid can form solid vessels of every description; and its life is also proved by the death inflicted when any excessive stimulus destroys the muscular fibre. Thus, in a body struck with lightning, the muscles remain flaccid and uncontracted, while the blood preserves its fluidity, and is left uncoagulated.

All this specious reasoning shows that blood is a living fluid, but does not in the slightest degree demonstrate to what principle this vitality is to be attributed. It merely proves that every part of a living animal, whether solid or fluid, is endowed with a certain degree of life; but leaves us in impenetrable darkness as to the nature of life. The one cannot be killed without the other; and, as Mason Good justly observes, "that which is at one time alive, and at another dead, cannot be life itself." It is clear that life cannot exist without blood, but at the same time it is equally evident that the blood is merely a secretion of the living system, and dependent upon the action of the solids, which influence its quantities and properties.*

It is from this notion of the vitality of the

* The diseases to which the blood is subject was another ground upon which the vitality of this fluid was founded. The most remarkable kind of diseased blood is that which occurs in

blood that the absurd idea of transfusing it was first conceived. Transfusion consisted in the injection of the arterial blood of young and healthy animals into the veins of the aged and the debilitated. It was about forty years after the discovery of the circulation by our Harvey that this singular project was tried upon animals, and afterwards upon man. Already in Germany medicated liquids had been introduced into the system by this method, principally by Wahrendorf. Dr. Christopher Wren, an English physician, was the

cholera, where it is dark, nearly black, even in the arteries. The cause of this phenomenon is by no means decided. Dr. Thomson attributes it to a diseased condition of the blood, which unfits it for being duly arterialised. Dr. O'Shaughnessy denies the assertion, and proved that choleric blood can be rendered florid by the absorption of oxygen. Dr. Stevens, in his treatise on the blood, attributes this dark appearance to the contagion of the malady, which throws the fluids into a morbid state, the effect of which is the diminution of the saline matter the healthy blood contains. He observed that in cholera hospitals the blood of all the persons residing in them was also dark. It is, however, more than probable that this morbid condition of the blood arises from the deranged state of the circulation, and may be attributed to a disease of the solids, which must invariably affect the fluids that they propel with more or less energy, flowing in a rapid current, or in a sluggish stream.

I have fully illustrated this want of oxygen in choleric blood in a work I published in Bordeaux, in 1831, entitled *Observations sur la nature et le traitement du Cholera Morbus d'Europe et d'Asie*; and, from several experiments subsequently made on choleric patients, I feel convinced that the inspiration of oxygen gas will be ultimately found the most energetic and effective practice in combating this fearful disease. By

first who proposed the injection of blood, and Dr. Lower put it into practice. The result of his experiments seemed to warrant their adoption. An animal was drained of a considerable proportion of blood, and lay faint and expiring; but the blood of another animal being thrown into the languid system, active circulation was restored, and the patient ran about with as much facility as before the experiment. When too great a quantity of blood was injected, the creature became drowsy, and shortly after died of plethora.

These experiments were reported by the transfusers with many absurd details. In one case, a simpleton had become witty by a supply of lamb's

By the experiments lately made by Dr. Donné of Paris, it has been found that the globules of blood, when submitted to microscopic examination, varied in magnitude according to the description of animals from which it was drawn. In certain diseases globules of pus have also been detected in the sanguiferous stream. They were larger than those of the blood, and, instead of being defined by a marginal line, were fringed on their circumference, and their centre was striated with interwoven lines.

The same physiologist discovered animalcules in the pus of certain ulcers not dissimilar in appearance to the *vibrio lineola* of Müller. Other animalcules, which he has named the *trichomonas vaginalis*, were also found in great number when the mucous membranes of the organ, whence the latter part of their denomination was derived, was in a state of inflammation. These animalculi could not be detected in healthy mucus. The knowledge of this influence of inflammation may lead to many important practical results.

blood ; in another, an old mangy cur was cured by the vital fluid of a young spaniel ; a blind old dog, transfused by a Mr. Gayant, bounded and frisked about like a young pup. Dr. Blundel seriously conceived that this operation might be practised with great advantage in cases of hæmorrhage, more especially in women.

When transfusion was first proposed in France, it met with furious opponents ; and Lamartinière declared that it was a barbarous operation proceeding from Satan's work-shop. The controversy between the transfusers and their adversaries was at length carried on with such virulence, that in 1668 the practice was forbidden by a decree of the Châtelet, unless the operation had been sanctioned by the faculty of Paris. In Italy it continued to be in vogue. Riva and Manfredi frequently performed it ; and a physician of the name of Simboldus submitted himself to the experiment. According to the accounts given by the patients who had been thus injected, they first experienced an increased heat with violent pulsation, profuse perspiration with pains in the loins and stomach, and a sense of suffocation. Violent vomiting frequently arose, and the patient gradually sank into a torpid and heavy sleep. Whatever may be the theoretical ingenuity in favour of this practice, it is not probable that it will ever be adopted.

While young blood was thus supposed to give

fresh vigour to the aged, the heat communicated by young persons to debilitated bedfellows was also resorted to. This practice seems to have been founded on observation. It is an acknowledged fact that an uncommon depression of vital power takes place in the young when such experiments are tried. This abstraction of vital power is frequently observed in young females married to very old men. In illustration of this fact, Dr. Copeland relates the following case: "I was a few years since consulted about a pale, sickly, and thin boy of about five or six years of age. He appeared to have no specific ailment; but there was a slow and remarkable decline of flesh and strength, and of the energy of all the functions,—what his mother very aptly termed 'a gradual blight.' After inquiry into the history of the case, it came out that he had been a very robust and plethoric child up to his third year, when his grandmother, a very aged person, took him to sleep with her; that he soon afterwards lost his good looks, and that he had continued to decline progressively ever since, notwithstanding medical treatment. I directed him to sleep apart from his aged parent, and prescribed gentle tonics, change of air, &c. and the recovery was very rapid."

This selfish indulgence of the aged in endeavouring to deprive their young bedfellows of heat and strength has been often remarked; and young

women thus circumstanced have shrewdly suspected the cause of their debilitated condition. It is extremely probable that in these cases electricity is conducted from one body to another. This hypothesis is in some degree confirmed by the experiments made upon Casper Hauser by Von Feuerbach. This Casper Hauser had been kept from infancy until he was eighteen years of age in a perfectly dark cage, without leaving it, and where he never saw a living creature or heard the voice of man. He was restricted from using his limbs, his voice, his hands, or senses; and his food consisted of bread and water only, which he found placed by him when wakening from his sleep. When exposed in Nuremberg in 1828, he was consequently at eighteen years as if just come into the world, and as incapable of walking, discerning objects, or conveying his impressions, as a newly born infant. These faculties, however, he soon acquired; and he was placed under an able instructor, who has recorded his singular history. Darkness had been to him twilight. The light of day was at first insupportable, inflamed his eyes, and brought on spasms. Substances, the odour of which could not be perceived by others, produced severe effects upon him. The smell of a glass of wine, even at a distance, occasioned headache; of fresh meat, sickness; and of flowers, a painful sensation. Passing by a churchyard with Dr. Daumer, the smell of dead bodies,

although altogether imperceptible to Dr. D., affected him so powerfully as to occasion shudderings, followed by feverish heat, terminating in a violent perspiration. He retained a great aversion, owing to their disagreeable taste and smell, to all kinds of food excepting bread and water.

When the north pole of a small magnet was held towards him, he described a drawing sensation proceeding outwards from the epigastrium, and *as if a current of air went from him*. The south pole affected him less, and he said it blew upon him. Professor Daumer and Hermann made several experiments of the kind, and calculated to deceive him, and, even although the magnet was held at a considerable distance from him, his feelings always told him very correctly. These experiments always occasioned perspiration and a feeling of indisposition. He could detect metals placed under oil-cloths, paper, &c. by the sensation they occasioned. He described these sensations as a drawing, accompanied with a chill, which ascended, according to the metal, more or less up the arm, and were attended with other distinctive feelings, the veins of the hand exposed to the metal becoming visibly swollen.

The variety and multitude of objects which at once came rushing upon his attention when he thus suddenly came into existence, the unaccustomed impressions of light, free air, and sense, and his anxiety to comprehend them, were too

much for his weak frame and acute senses: he became dejected and enfeebled, and his nervous system morbidly elevated. He was subject to spasms and tremors, so that partial exclusion from external excitements became for a time requisite. After he had learned regularly to eat meat, his mental activity was diminished; his eyes lost their brilliancy and expression; the intense application and activity of his mind gave way to absence or indifference, and the quickness of apprehension became diminished. It may be questioned whether this change proceeded from the change of diet, or the painful excess of excitement that preceded it.

Among the various doctrines regarding the creation of animals, that of *Panspermia* was most ingenious and attractive. According to this theory, maintained by Anaxagoras and Heraclitus, all bodies contained the germ or the organic molecules necessary for their generation. Hippocrates was favourable to this idea, as plainly appears in his book *de Dietâ*; and in modern times Perrault, Gésik, Wollaston, Sturm, and other physiologists, have endeavoured to revive the doctrine, of which the organic molecules of Buffon and the living molecules of Ray were merely modifications. The expression in Genesis which sanctions the belief that the earth spontaneously germinated its productions, cannot be referred to the animal kingdom. Were this the case, similar animals would

be found in every quarter of the globe. Spontaneous generation was also attributed to putrefaction; and Virgil describes the manner in which Aristæus drew forth a swarm of bees from the corrupted entrails of a heifer. Pliny admits the spontaneous creation of rats, mice, frogs, and other small tribes of animals. These errors, however, were soon dispelled by the light thrown on the subject by the microscopic experiments of Valisnéri, Swammerdam, Réaumur, and many other naturalists, who discovered sexual organs in all these supposed self-created individuals.

This doctrine was the foundation of the classification of the generative principle into *equivocal* and *univocal* generations,—the former the effect of putrefaction, but which in reality was *univocal*, since it was soon ascertained that this production arose from the incubation of numerous eggs deposited by various insects and animalculi in these corrupted bodies. The following experiment afforded a convincing proof of the fact. A piece of meat was placed in an open vessel, and another in a vase hermetically closed; so soon as these animal substances entered into decomposition, myriads of insects pullulated in the exposed meat, whereas that which was protected from external agency remained free from this invasion.

It is a recognised fact that it is only through organised beings that organisation can be transmitted; for how can corrupt substances, dead and de-

prived of vitality, give life to any organised matter? Generation is life; putrescence is death. By a law of nature, generation may be said ultimately to destroy the generative powers; a striking illustration of mortality, since life is transmitted at the expense of our very existence, and many individuals in the catenation of organised beings perish the very moment that they have tended to perpetuate their race. Death advances with rapid strides in the very ratio of the energies of life; and the surest method to attain longevity is to be sparing in the exercise of our exhausting faculties.

Et quasi vitæ lampada tradunt.

Latent or insensible life, such as that of the seeds of plants, or the animal enveloped in its egg, may last for a number of years, so long as they are able to germinate; here vitality is not worn out by relative life. Various species of the snail, the wheel-polybe, the tile-eel, and divers animalcules, have been kept apparently dead, and in the form of dried preparations, withered and hardened, for months, and even years, but have afterwards been restored to life by the agency of warmth, moisture, and other stimulus. Snails have been thus re-animated after a lapse of fifteen years; and Bauer revived the *Vibrio tritici*, after an apparent death of five years and eight months, by merely soaking it in water. Some theologasters have endeavoured to explain the resurrection of the dead

by these natural phenomena; forgetting that in these instances no corruption or actual disorganisation had taken place. Stahl expresses himself in the following words when defining life: "Life is formally nothing more than the preservation of the body in mixture, corruptible indeed, but without the occurrence of corruption;" and in Junker we find, "What we call life is opposite to putridity."

The next theory attributed the principle of life to a subtle *gas* or *aura*. This doctrine constituted one of the principles of the Epicurean philosophy, and was illustrated by Lucretius in his poem on the Nature of Things:

Nam penitùs prorsùm latet hæc natura, subestque ;
Nec magis hac infra quidquam est in corpore nostro ;
Atque anima est animæ proporrò totius ipsa.

According to these notions, there existed a volatile principle that bore no specific name, but was diffused through every part of living bodies, more subtle than heat, air, or vapour. In later times this same gaseous agent received various appellations. Van Helmont designated it as the *aura vitalis*, while other philosophers called it the *aura seminalis* and the *aura sanguinis*. The *archeus faber* of Van Helmont, the *astrum internum* of Crollius, the *principium energoumenon* of Michael Alberti, the *substantia energetica naturæ* of Glisson, may all be referred to this unseen but powerful agency. Hippocrates called it *φύσις*, or nature,

which he elsewhere denominates *ενοργαντα*. It was also the *δυναμις ζωτικη* of Galen. This soul, or breath, or spirit, directed and preserved the whole economy; and Chrysippus asserts that it acted like salt upon pork.

Modern chemistry has sought this principle in specific agents. Caloric, or the matter of heat; oxygen, or the vital part of atmospheric air, first discovered by Priestley, and explained by Lavoisier; and finally, the fluid collected by the Voltaic trough, were then considered as the principle of life. The experiments of Professor Galvani of Bologna, in which he produced the phenomena of life many hours after death, induced many physiologists to maintain that the identity that existed in galvanic electricity and the nervous influence, proved that this *aura* was the creative agent in our economy.

While naturalists were thus groping in nature's dark labyrinth, endeavouring to account for the wonders, of the *natura naturans*, that divinity of the Stoics that Lucan thus describes,

Superos quid quærimus ultrà?

Jupiter est quodcumque vides, Jovis omnia plena,—

other wise men fancied that they had actually discovered the seat of life, which, according to their fanciful speculations, they had lodged in certain organs. The nervous system, the spinal marrow, the brain, the heart, were all and each of them considered in turn as the head-quarters of vitality; while

the work-shop of alimentation, our much-abused stomach, did not pass unnoticed and unhonoured. The heart of a turtle, and of some reptiles, has been seen contracting and dilating hours after its extraction from the body ; the stomach has been excited into an action bearing some analogy to vomiting, when separated from the trunk ; but all these curious phenomena, explained and accounted for (in some measure, at least) by physiology, do not tend to prove that any one organ, or any chain of organs, is possessed of separate vitality independent of the general principle of life. The brain, which has been regarded as the chief seat of this principle, is not always essential to life ; for although man perishes, or at least his vital functions cease to act, when he is decapitated,* yet various birds and reptiles continue to live for hours and days after the head has been severed from the body, while we actually behold a regeneration of the head in the earth-worm. Moreover, we have upon record many cases of *acephalous* children, or born without any head ; and *anencephalous* ones, who lived (for a short time, it is true) without any brains. Fontana removed the entire brain of a

* During the horrors of the French Revolution, various experiments were made by Sue and other physiologists to ascertain if the bodies of the guillotined victims possessed sensibility. No conclusion, however, could be elicited from these inquiries, which gave rise to many absurd tales, such as the face of Charlotte Cordays having blushed when the executioner slapped it, as he held it out to the enraptured Parisians.

turtle, yet it lived six months, and walked about as before.

Sandiford had divided acephalous animals into three classes: the first, in which the head was wanting; the second, where other organs were also missing; and the third, where the foetus presented an unformed mass. In the acephalous twin described by Béclard, no liver, spleen, stomach, or oesophagus could be discovered, and the intestinal tube commenced at the superior extremity of the body. The infant had ten ribs on each side, and regular nerves arose from the spinal marrow. Although headless animals may not be gifted with intellectual faculties evident to our senses, yet they clearly live and feel. The zoophytes and polypes, without brains or heads, possess irritability and sensibility; they can seek their food, seize it, reject what is not edible, are susceptible of the powers of light and heat, can contract their fibres when touched or injured, and, in short, manifest various innate or instinctive powers. Gall has maintained that the passions resided in the brain, and, therefore, that brainless animals did not experience their influence. This is a bold assertion. Can he prove that worms, insects, zoophytes, that possess only what is called a ganglionic system, are strangers to instinctive fears and partialities? I apprehend that it will be found that passions belong to instinct much more than to our volition.

It is nevertheless true that animals may be killed by wounding the spinal marrow, by the process commonly called "*pitting*." This practice may be traced to high antiquity ; and Livy informs us that when the Carthaginian troops were routed, Asdrubal ordered their unmanageable elephants to be destroyed by driving the point of a knife between the junction of the head and spine.

From these observations it will appear quite clear that life has no necessary connexion with sensation, although the latter cannot be experienced without the former. Vegetables are endowed with vitality ; but we have no reason to suppose that they feel. It is also more than probable that, as the degree of intelligence decreases, the intensity of the corporeal feelings are also diminished. Did not this scale of sensibility exist, insects could not live under the supposed agonies that the entomologist daily inflicts. This supposition does not rest upon indefinite reasoning, for in our own race we observe that those parts that are gifted with a reproductive power are possessed of the smallest degrees of sensation ; and the cuticle, the hair, the beard, and the nails will even grow after death. This fact may calm the squeamish apprehensions of those very humane persons who look upon experimental physiologists as very monsters of barbarity. Vaillant took out the intestines of a locust, and stuffed it with cotton, then fixed it

down in his box with a pin, yet, five months after, the insect moved its feet and antennas. Spallanzani has shown that the snail can renew its head.

All this confusion in theories and wandering of the imagination has arisen from our confounding the vital principle, of which we know nothing, with the phenomena of sensation, which patient and calm investigation may account for. That there does exist a principle of life that animates, vivifies, and preserves, until its powers cease, all living bodies, no one can deny ; although to find out its nature is a vain pursuit, as idle as our endeavours to penetrate into the *causes of causation*. As Richerand observes, “ its *essence* is not designed to preserve the aggregation of our constituent molecules, but to collect other molecules, which, by assimilating themselves to the organ that it *vivifies*, may replace those which daily losses carry off, and which are employed in repairing and augmenting them ; the word *vital principle* is therefore not designed to express a distinct being, but denotes the *totality of powers alone* which animate living bodies, and distinguish them from inert matter, the *totality of properties and laws* which govern the animal economy.”

Of all the doctrines upon this abstruse subject, (of which I have noticed the principal ones,) that of the pre-existence of an organic germ appears

the most plausible, or at any rate the easiest to conceive. It was from this conviction that the ancients held as an axiomatic principle *Omnia ex ovo*. It is upon this theory that Buffon rested his organic molecules, and Ray his vital globules. The primitive lineaments of organisation may be traced in the egg, even before it is fecundated. The embryo that we find in its involucra is soft, flexible, ready to receive the plastic impression of the vivifying secretion,—the fecundating agency that imparts existence and all its wondrous attributes, to the pre-existing *ova*, the *ova subventanea*. It does not appear that the first organ of the embryo that exhibits the living principle is the heart, hence denominated in the foetus the *punctum saliens*; the principle of life has probably organised every molecule of the animal long before this supposed fountain of vitality has been seen to flow. It is more likely that the nervous system has received the first impressions imparted by the fecundating secretion, that the ancients supposed to have been a direct emanation from the brain, and bearing in its vivifying molecules the life of every part of the being it was about to organise; thus Valescus: “Sperma hominibus descendit ex omni corporis humore, qui fit ex subtiliori naturâ. Habet autem hoc sperma nervos et venas proprias attrahentes se à toto corpore ad testiculos—à membris disconditur principalibus—à corde, epate, cerebro mittuntur spiritus, ex quibus resultat spiritus in-

formativus, et non aliter nisi cum spermate—ergo ab iis principaliter sperma disconditur.”

Such were the doctrines on this curious subject until the days of Fabricius d’Acquapendente and Harvey. Buffon, however, exerted all his eloquence to revive the theory. The following are the notions of this elegant writer, who unfortunately only studied natural history in books and cabinets. He maintains that there exist two sorts of matter,—the one living, the other dead: the first enjoying a permanent vitality; the second universally spread, passing from vegetables to animals through the channels of nutrition, and returning from animals to vegetables through the medium of putrefaction,—thus in a constant state of circulation to animate living beings. This vital matter exists in determined quantities in nature, and is composed of an infinity of organic molecules, primitive, living, active, incorruptible, and in relation, both as regards action and numbers, with the molecules of light, and enjoying an immutable existence, since the usual causes of destruction can only affect their adherence. It is these molecules which, being cast in regular moulds, constitute all the organised bodies that surround us. According to this doctrine, *developement* and *growth* are only a change of form operated by the addition of organic molecules; *nutrition*, the preservation of this form by the accession of fresh mole-

cules that replace those that are destroyed ; *generation*, the combination of these particles ; and *death*, their separation from cohesion and association.

This ingenious system is not dissimilar to that of Maupertuis, who thought that the mysteries of generation could be explained by the usual laws of elective attraction. Various were the physical, metaphysical, and moral batteries raised against this visionary fabric. One single fact was sufficient to overthrow it. We constantly see parents deficient in a limb, or misshapen, producing perfect offspring ; if each part of the economy was to transmit to its progeniture molecules similar to itself, the child would naturally be visited with the imperfection of the parent.

Notwithstanding these fallacies, we cannot but admit that chemical and molecular attraction constitute the principle that harmonises all organised bodies. Generation is simply a function of organisation and life. Organised bodies alone can generate. The living only can impart life. Animals and plants transmit to their descendants their several properties ; and the inheritance of organisation departs with the vital spark. Life is the property of no one ; it is a transmitted heir-loom that never perishes ; it resembles a torch that communicates an eternal flame while consuming itself. Organised beings have justly been considered the fuel of the universal

vital fire, and we all are the *daily bread* of that monstrous animal called *the world*. All are engulfed in that vortex which Beccher has called the "*circulus æterni motus*." Metempsychosis was simply an illustration of this fact recognised in all ages in the East, and taught in European schools by Pythagoras. Nothing perishes; and even combustion produces fresh combinations.

Poetical philosophy has considered *Love* as the source and arbiter of *life*, and the *Venus Generatrix* the fount of our existence. Lucretius recognises this power in the following lines :

Per te quoniam genus omne animantùm
Concipitur, visitque exortum lumina solis.

Then again,

Omnibus incutiens blandum per pectora amorem,
Efficis ut cupidè generatim sæcla propagent.

Virey, a delightful French physiologist, seems to partake of this mythological opinion in the following passage: "L'amour est l'arbitre du monde organique; c'est lui qui debrouille le chaos de la matière, et qui l'impregne de vie. Il ouvre et ferme à son gré les portes de l'existence à tous les êtres que sa voix appelle du néant, et qu'il y replonge. L'attraction dans les matières brutes est une sorte d'amour ou d'amitié analogue à celle qui reproduit des êtres organisés. Ainsi la faculté générative est un phénomène général dans l'univers; elle est représentée par les attrac-

tions planétaires et chimiques dans les substances brutes, et par l'amour ou la vie dans les corps organisés."

According to our amatory neighbours, the word *ame*, or soul, comes from *amor* and *amare*, and *amare* is derived from *animare*; hence *animation* and *animal* may be syllogistically referred to love.

I know not how far this etymological disquisition may illustrate the history of their *enfants trouvés*, or our foundling hospitals, the inmates of which are generally uncommonly ill favoured by Beauty. The offspring of the aforesaid Venus Generatrix must have been especially ungrateful; and if it is true that Julius Cæsar was her son, he certainly exerted his best endeavours to depopulate his mother's territories.

OF THE HOMŒOPATHIC DOCTRINES.

It is a matter worthy of remark, that, while the doctrines of homœopathy have fixed the attention and become the study of many learned and experienced medical men in various parts of Europe, England is the only country where it has only been noticed to draw forth the most opprobrious invectives. It is certainly true that no one but an ardent proselyte of the visionary Hahnemann could for one moment become the advocate of all his absurd ideas ; yet, while we reject his errors, great and important truths beam from the chaotic clouds that shroud his wanderings ; and, however wild his theories may be, incontrovertible facts have been elicited from his apparently inefficacious practice.

Before I enter into an examination of the practical views of the homœopathists, I shall give a brief sketch of their doctrines and their founder.

Samuel Hahnemann was born in Meïssen in Saxony, on the 10th of April 1755. His father was an humble porcelain manufacturer. The first rudiments of education that young Hahnemann received were gratuitous ; and his master, pleased

with the progress of his ambitious but needy scholar, strongly urged his repairing to Leipzig, where, at the age of twenty, he arrived, with exactly the same number of crowns in his pocket as he numbered years. At this university he zealously pursued his favourite studies of the natural sciences, supporting himself by translating French works, giving lessons; and finally he graduated in the university of Eslangen in 1779.

It was during his arduous studies that Hahnemann was struck with the conflicting systems and the deplorable controversies which for centuries divided in turn the medical schools of Europe, and were triumphant or overthrown by scholastic revolutions; each doctrine being doomed to obscurity and oblivion in the ratio of its ephemeral splendour. The result of his reflections and experiments was the system of homœopathy. Its novelty, its apparent absurdity, soon exposed him not only to opposition, but violent persecution. As is usual in all cases of oppression, whether justly or unjustly resorted to, proselytes as furious and as fanatical as his persecutors joined their chief. Despite the sanitary regulations of Saxony, which prohibited physicians from dispensing their medicines, Hahnemann prepared and supplied his homœopathic remedies; and, expelled from Leipzig, sought a refuge at Kœthen, where, exasperated by the harsh treatment he had experienced, he fulminated his anathema on all past

and present systems of medicine with no small degree of furious resentment, pronouncing his doctrine as stamped with the seal of infallibility, and denouncing all others as the aberrations of ignorance and error, or the speculations of imposture and fraud.

As might have been expected, few of his opponents thought it worth their while to study his system calmly and dispassionately ; nor, indeed, was such an application necessary, for his doctrines needed no deep investigation on the part of his foes, so fraught were they with apparent errors and false deductions, not only from his own pretended experience, but the experience of ages. Finding that he could not enjoy a despotic sway over the schools, he was resolved at any rate to seek the palm of martyrdom, and had recourse to such violence in words and actions, that many of his enemies maintained that he was a more fitting subject for a lunatic asylum than the *soi-disant* founder of a rational doctrine ; for he and his fanatical disciples set all ratiocination at nought, considering his *dixit* as a fiat of condemnation passed on all who dared to doubt his infallibility, although at different periods their oracle was obliged to retract many erroneous assertions and contradict fallacious statements.

In the short view of his doctrines which I am about to give, these fallacies will become evident, and shall be duly pointed out.

Hahnemann had observed in his studies and hospital practice that the prevalent systems of medicine were founded on the rational principle of combating effects by striking at morbid causes: sometimes physicians endeavoured to attain this desirable end by producing in the system an artificial action differing from the nature of the malady, and founded their practice on the scholastic axiom of *contraria contrariis curantur*; at other times they raised or depressed the vital energies according to the prevalence of excitement or debility, or modified the character of the disease by revulsion and derivation, a practice which received the name of antagonistic, or *allopathic*,—a term used by Hahnemann in contradistinction to homœopathy, and derived from *αλλος*, *different*, and *παθος*, *affection*.

In his therapeutic pursuits Hahnemann had been forcibly struck with the long-acknowledged fact that medicinal substances supposed to possess a certain specific property in the treatment of diseases, were known in the healthy subject to produce phenomena bearing a close analogy to the symptoms of those identical diseases. Thus, mercurial preparations occasioned symptoms of syphilis, sulphur produced cutaneous irritation, and, in some instances, the exhibition of cinchona had been known to bring on febrile intermissions. In various works he found these observations es-

tablished. For instance, amongst many others, he found in the publications of Beddoes, Scott, Blair, and various writers, that nitric acid, which was known to produce ptyalism, relieved salivation and ulceration in the mouth. Arsenic, which, according to Henreich, Knape, and Heinze, occasioned cancerous anomalies in healthy subjects, was stated by Fallopius, Bernharde, Roenow, and many other surgeons, to be efficacious in relieving, if not curing, similar disorders; preparations of copper were asserted by Tondi, Ramsay, Lazermi, and numerous practitioners, to have produced epileptic attacks; and Batty, Baumes, Cullen, Duncan, and several experienced medical practitioners, recommended similar remedies in epilepsy. In short, the illustrations of the power inherent in certain substances to produce accidents analogous to the symptoms of the various diseases in the treatment of which they had proved efficacious, induced Hahnemann to consider whether a treatment founded on *similia similibus curantur* might not be found more effectual than the former practice based upon the *contraria contrariis*. He was of opinion that no medicine was possessed of any *curative property*, but solely acted by its *morbific power* of producing a disordered condition in the system; and on this and other principles, which we shall shortly notice, he asserts that nature does not possess any curative

power, totally denying the *vis medicatrix* of the schools. He further maintained, that there does not exist any specific malady ; but that which we consider to be a disease is nothing but a complexity of symptoms, and that a cure can only be effected when these complex symptoms are made to disappear.

Impressed with these ideas, he and his disciples diligently proceeded to try various medicinal substances upon themselves and others when in health, and, carefully recording the symptoms which these medicines produced, they drew up a statement of their various powers, that they might be afterwards resorted to, to relieve the same symptoms in a morbid state. Grounding this practice on the principle (in many instances correct) that two similar diseases cannot co-exist, they conceived that if, to counteract a natural malady, one can produce by any medication an artificial derangement of the same nature, the artificial one will overcome the natural disease, and a radical cure be obtained. To explain more distinctly this idea, I shall quote the author's words.

“The curative power of medicines is thus founded on the property they possess to give rise to symptoms similar to those of the disease, but of a more intense power. Hence no disease can be overcome or cured in a certain, radical, rapid, and lasting manner, but through the means of a medicine capable of provoking a group of

symptoms similar to those of the disease, and at the same time possessed of a superior energetic power.”* And further,

“If two dissimilar maladies happen to be co-existing, possessed of an unequal force, or if the oldest disease is more energetic than the recent one, the latter will be expelled by the former. Thus, an individual labouring under a severe chronic disease will not be subject to the invasion of an autumnal dysentery, or any other slight epidemic. Larrey affirms that the districts of Egypt in which scurvy was prevalent were exempt from the plague. Jenner asserts that rachitis prevents the effect of vaccination; and Hildebrand assures us that phthysical patients never experience epidemic fevers unless of the most severe character.”†

“If a recent affection, dissimilar to a more ancient one be more powerful than the latter, then will the progress of the latter be suspended until the malady is either cured or has been expended in its career, and then the old one will reappear.”‡

“But the result is totally different when two similar diseases meet in the organism; that is to say, when a pre-existing affection is complicated with one of the same nature, but possessed of more energy.”§

“Two maladies resembling each other in

* Organon, xxii.

† Op. cit. xxxi.

‡ Ibid. xxxiii.

§ Ibid. xxxviii.

their manifestation and their effects, that is to say, in the symptoms which they determine, mutually destroy each other, the strongest conquering the weakest.”*

He further contends that the essential nature of every disease is unknown; that their existence is revealed by alterations and changes in the system perceptible to our senses, and constituting what are called *symptoms*, and it is the series of these symptoms which characterise the disease in its course and its developement. According to his notions, the physician has only to follow and study the succession and the grouping of these symptoms; in short, the phases and the phenomena of diseases. Attack and destroy these symptoms, and you will have destroyed the malady.

All classification of diseases, and their various denominations, he therefore deemed absurd, as, according to his doctrines, no one disease resembles another; so various were their modifications, that, with few exceptions, it was idle to give them a particular name, since disease was simply a derangement in our organisation manifested by peculiar symptoms.

We are also, according to Hahnemann, igno-

* Organon, XL. This will be found to be the case in all diseases that are dissimilar; the stronger suspends the weaker, except in case of complication, which is a rare occurrence in acute diseases, but they never cure each other reciprocally.

rant of the essential properties of medicines, and can only observe and record their effects by experimental observation. Like diseases, they also produce a derangement in our organism, manifested by peculiar symptoms, their sole action consisting in developing specific diseases.

In conformity with these notions, to cure disease we have only to produce a similar affection ; the primitive one would then give way to the secondary affection artificially produced, and in time the artificial one would cease to exist when the means that produced it were no longer brought into action.

Homœopathic medicines, he maintained, have the property of acting in a direct manner upon the affected part of the system ; and this is proved when the disease, and the medicine given to relieve it, produce similar morbid manifestations : and he further contended that our vital organism was less susceptible of the action of natural affections than of those which are artificially produced.

On this basis did the homœopathic doctrinarians ground their practice ; but a still more singular theory was broached by their leader : he maintained that medicinal substances, to prove efficacious, should be administered in an attenuated and diluted state, carried to such an extent as to become infinite in their division, and not even ponderable in their substance ; he further asserts that this infinite division, far from diminishing their

medicinal power and properties, imparts greater energy and certainty of action when these particles encounter in our organisation an affinity of disposition, or a homogeny in action ; that is to say, that these atomic attenuations act with greater power in those affections which manifest symptoms similar to those which these very medicines are known to produce when experimentally tried upon a healthy subject.

Upon this principle the homœopathist condemns all combinations of medicines as likely to neutralise each other's properties by their various affinities : therefore, generally speaking, no fresh medicine should be given until the effects of the former one have subsided ; and to guide this practice, while they endeavoured to ascertain the symptoms produced by medicines, they also sought to ascribe certain limits to the duration of their action : thus, the influence of aconite lasts forty-eight hours, and that of crude antimony fifteen days.

Dreading all substances that could tend to weaken or neutralise the effect of medicine, the homœopathists made it their particular study to discover the peculiar action of all alimentary substances on the organism, and characterised as antidotes all such articles of food as they considered opposed to this supposed action : thus, wine and vegetable acids were deemed antidotes to aconite ; coffee, to *Angustura* bark ; vinegar, to *asarum*, &c.

I have already stated that the homœopathists

conceive that the infinite dilution of their atoms of medicinal substances increase their energy ; and this fact they so strenuously maintain, that they assert that accidents of a serious nature may arise when this division is carried too far ; and these accidents are then to be met with the medicinal antidotes they pretend to have discovered : thus, camphor is an antidote to *cocculus* ; opium, to the *crocus sativus* ; camomile and camphor, to *ignatia amara* ; and so on.

The minuteness with which the specific actions of various medicinal substances on certain organs is detailed is scarcely credible, and the following extract from the homœopathic *materia medica* will give a slight idea of their industrious labours. Taking as an example phosphorus, which they affirm produces—

Vertigo, determination of blood to the head, head-ache in the morning, fall of the hair, difficulty in opening the eye-lids, burning sensation and ulceration of the internal canthus of the eye when exposed to the open air, lachrymation and adhesion of the palpebræ ; inflammation of the eyes, with the sensation of particles of sand having been introduced ; sparks and spangles floating before the eyes, a dark tinge in objects that are looked on, diurnal cecity, the appearance of a grey veil drawn before the eyes, pulsation in the ears, epistaxis, mucous discharge from the nostrils, foulness of breath, tumefaction of the

throat, whiteness of the tongue, ulceration of the mouth, expectoration of glairy mucus, dryness of the mouth by night and by day, spasmodic eructation, nausea, sense of hunger after eating, anxiety after meals;—in short, twenty-four octavo pages are devoted to the innumerable effects of this substance on the organism.

Of *magnesia artificialis* three hundred and twelve symptoms are noted; six hundred and fifty of the *rhus radicans*; nine hundred and forty of *pulsatilla*; five hundred of *ignatia amara*; four hundred and sixty of *arsenic*: in short, volumes upon volumes are crowded with these observations, not only recording physical effects, but singular results on our moral faculties, such as serenity or moroseness, gaiety or sadness, a disposition to commit suicide or a fond partiality to life, courage or cowardice, a weak intellect or a vigorous conception. For instance, common sea-salt occasions irascibility, lowness of spirits, taciturnity, melancholy, palpitation of heart, disposition to shed tears, pusillanimity, and despair; while potash gives rise to ill-temper without apparent cause at noon and in the evening, with violent paroxysms of rage in the morning, impetuous desires, furious passion with gnashing of teeth if all around does not yield to the patient's desires; while the vision of a bird hovering about the window produces loud shrieks of alarm, exaltation of the

intellects, and a horror of the future. So innumerable, indeed, are all these singular effects attributed to various medicines thus experimented, that no memory, however retentive, could possibly bear them in recollection. The following are the directions laid down for conducting this curious inquiry.

The person upon whom medicines are tried must be free from disease, but weak substances should be given to subjects of a delicate and sensitive constitution: the medicine is to be tried in its most pure and simple state, possessing all its energies, taking special care that it is not combined with any heterogeneous substances during the day it is exhibited, and the time while its action is supposed to last. The diet must be moderate; all spices and high-seasoned food to be avoided, as well as green vegetables, roots, salads, &c. which are known to possess medicinal properties. The dose of the medicine to be similar to that which is usually prescribed by practitioners. If at the expiration of about two hours no effect is observed, a stronger dose is to be given. Should the first dose operate powerfully at the commencement, but gradually lose its influence, the second will be given the following morning; and a still stronger one, four times the strength of the first, be administered on the third day.

The result of these experiments being recorded,

homœopathic agents are selected to oppose morbid symptoms, and when the choice of remedies has been appropriate, an aggravation of the symptoms is observed. This aggravation is usually considered as an increase of the disorder, whereas it is solely the effect of the homœopathic remedy. "For these phenomena," say the homœopathists, "were frequently observed by physicians, who little thought at the time, that they were the result of the medicines they had given." Thus, when the pustules of itch became more rife after the exhibition of sulphur, it was thought that the increase of the eruption was merely the affection *coming out* more freely; whereas, the aggravation was occasioned by sulphur. Leroy informs us that the heart's-ease, *viola tricolor*, increased an eruption in the face. Lyrons says that elm-bark aggravated cutaneous affections, which were cured by this remedy; but neither of them were aware of the nature of this homœopathic developement. For further information on this head, the Organon of Hahnemann must be consulted.

Such were his doctrines for a period of about twenty years,—doctrines which he emphatically pronounced infallible, and founded on the immutable laws of homœopathy. In 1828, however, convinced by numerous failures in the treatment of chronic diseases, that other causes than those which he acknowledged,—such as the improper preparation of the medicine, or dietetic neglect on the part

of the patient,—contributed to these disappointments, he announced that he had discovered the hidden source of the obstacles he encountered; and that, after many years of experiments and meditation, he had come to the conclusion that almost all chronic diseases originated from constitutional miasmatic affections or predispositions, which he divided into *sycosis*, *syphilis*, and *psora*, or, in plain English, the itch. To this latter affection he attributes innumerable disorders. In diseases of a syphilitic character he had found his mode of treatment infallible, and he therefore concluded that all obstinate and rebellious affections were the result of some other constitutional predisposing circumstances. He tells us that he laboured in profound secrecy to discover this great, this sublime desideratum: his very pupils knew it not; the world was to remain in ignorance of his pursuits until he could proclaim the most inestimable gift that Divinity bestowed upon mankind. This immortal discovery was neither more nor less than the itch, to which malady, according to his views, since the days of Moses, seven-eighths of the physical and moral miseries to which flesh is heir were to be referred. Whether rendered evident by eruptions, or latent from our cradle, it was a curse transmitted to us, by the modification and degeneration of leprosy, through myriads of constitutions, and which only disappears from the surface to fester in malignity

until it bursts forth again in the multifarious forms of innumerable diseases, amongst which we find scrofula, rachitis, phthisis, hysteria, hypochondriasis, dropsy, hydrocephalus, hæmorrhage, fistula, diseases of the head and liver, ruptures, cataracts, tic douloureux, deafness, erysipelas, cancers, aneurisms, rheumatisms, gout, apoplexy, epilepsy, palsy, convulsions, stone, St. Vitus's dance, nervous affections of every description, loss of sight, of smell, of taste, stupidity and imbecility."* In support of this doctrine Hahnemann adduces ninety-five cases recorded by medical writers, in which the disappearance of the itch was followed by various acute and chronic maladies.

The next miasmatic generator is *sycosis*, or the disposition to warty excrescences ; but this source of disease Hahnemann does not consider so prolific as syphilis or his favourite psora.

Such are the principal features of the homœopathic system. I have already stated that its followers consider the most minute particles of medicine more powerful than larger doses ; they therefore have recourse to infinite trituration or dilution in three vehicles which they consider free from any medicinal property, — distilled water, spirits of wine, and sugar of milk ; by these means they procure a decillionth or a quintillionth fraction of a grain. One drop of their

* On Chronic Diseases. Translation of Begel, p. 107.

solution is considered sufficient to saturate three hundred globules of sugar of milk ; and three or four of these globules are deemed a powerful medicine. To give a better idea of Hahnemann's notions on this subject, I shall quote his own words :

“ By shaking a drop of medicinal liquid with one hundred drops of alcohol *once*, that is to say, by taking the phial in the hand which contains the whole, and imparting to it a rapid motion by a single stroke of the arm descending, I shall then obtain an exact mixture of them ; but two or three, or ten such movements, would develop the medicinal virtues still further, making them more potent, and their action on the nerves much more penetrating. In the extenuation of powders, when it is requisite to mix one grain of a medicinal substance in one hundred grains of sugar of milk, it ought to be rubbed down with force during one hour *only*, in order that the power of the medicine may not be carried to too great an extent ; medicinal substances acquiring at each division or dilution a new degree of power, as the rubbing or shaking they undergo develops that inherent virtue in medicines which was unknown until my time, and which is so energetic that latterly I have been forced by experience to reduce the number of shakes to two.”

As a further illustration of this theory, he

affirms that gold is without any action in our organism in its natural state ; but that when one grain of this metal is triturated according to the above process until each grain of the last triturated preparation contains a quadrillionth part of the original grain of the mineral, it will be so powerful that it will be sufficient to place this single grain in a phial, to be inspired for a moment, to produce the most amazing results, and none more so than the faculty of restoring to a melancholy individual disposed to suicide, his pristine partiality to life.

Unfortunately for Hahnemann, many of these assertions are unsupported by facts or sound reasoning, and appear mere wanderings of an ardent imagination ; and thus soaring in regions of fancy, he himself has struck many fatal blows in his own doctrines. For instance, what are the arguments he adduces to prove that in two similar diseases the strongest will overcome the weakest ?

“ Why,” he exclaims, “ does the splendid Jupiter disappear during the twilight of morn to the eyes of the contemplator ? It is because a similar power, but possessed of greater energies, the breaking day, acts upon our organs.”

This is a defective analogy. Hahnemann tells us that a stronger power banishes a weaker one in a permanent manner, whereas the bright planet he here alludes to will return with the night. Then again :

“ With what do we endeavour to relieve the olfactory nerves when offended by disagreeable odours ? By snuff, which affects the nostrils in a similar but a more powerful manner.” This is not correct : when the action of snuff has ceased, the disagreeable effluvia become again offensive. In some instances his poetical vagaries are preposterous. “ By what means,” he adds, “ do we endeavour to protect the ears of the compassionate from the lamentations of the poor wretched soldier condemned to be scourged ? Is it not by the shrill notes of the fife united to the loud beat of the drum ? How do we endeavour to drown the roar of distant artillery that causes terror in the heart of the soldier ? By the roll of the double drum ;—nor would this feeling of compassion, this sense of terror, have been checked by admonition or by splendid rewards. In the same manner our grief, our regret, subside, upon receiving the intelligence, true or false, that a more lively sorrow has affected another person.” It would be idle to dwell upon the absurdity of such visions and erroneous statements.

To support his doctrines, Hahnemann should have proved, 1st, that medicinal powers do produce an artificial malady similar to the natural affection ; 2nd, that the organism only remains under the influence of the medicinal disease ; 3rd, that this medicinal disease is of a short duration ; and 4th, that all these effects can only be pro-

duced by a medicine selected according to the similarity of symptoms. Our theorist has utterly failed in his endeavours to establish these facts ; therefore have his doctrines been impugned by many of his most zealous disciples, amongst whom may be mentioned Griesselich, Rau, Schroen. The aggravation which he asserts takes place after the exhibition of a homœopathic medicine is not only unsupported by proof, but positively denied by many of their practitioners ; and Hartman plainly affirms that, after a homœopathic dose, the patient frequently experiences a state of calm, a disposition to slumber, and often falls into a profound sleep more or less prolonged, in waking from which he finds himself much relieved, if not perfectly cured. Thus several physicians who have adopted his practical views reject many of the doctrines on which they are founded ; and a homœopathist has justly compared his works to a wild virgin forest, in which we meet with a number of valuable trees and plants in the midst of arid brushwood and parasitic weeds that would check the growth of the most useful production.

Yet, notwithstanding the many gratuitous assertions, and consequent erroneous inductions, we meet with in the *Organon*, it is probable that this system is destined to operate a gradual but material revolution in the *practice* of medicine. As to theories, we must agree with Voltaire when he said, “ En fait de système, il faut toujours se re-

server le droit de rire le lendemain de ses idées de la veille.”

Hippocrates laid down in his Aphorisms the incontrovertible fact, “*Duobus doloribus simul obortis, non tandem eâdem in parte, vehementior alterum obscurat. A. 46.*” To a certain degree, it was upon this assertion, which the experience of ages has confirmed, that Hahnemann founded the principal and most important point of his doctrine; but, going much farther than the father of medicine, he affirms that similar diseases effectually remove each other. For centuries practitioners have been acting homœopathically; the exhibition of specifics, in fact, is nothing else. As we have already shown, specifics are known to produce symptoms similar to the diseases they cure. Hitherto the number of such medicines has been confined to a very few agents; and perhaps, with the exception of mercury, sulphur, and bark, with their several preparations, scarcely any article in the materia medica could have claimed this peculiar property. To extend these limits, which confined in so exiguous a compass our therapeutic agents, has been the laborious and singular study of Hahnemann and his disciples. Haller had first given the example, and they arduously applied themselves to discover by experiments on the healthy subject, both upon their own persons and others, what were the peculiar effects or symptoms produced by various medicinal substances.

These observations are so numerous and confused, that, on reading them, we feel plunged in a chaotic labyrinth of symptoms, without any clue to extricate ourselves from its perplexing mazes. Still, from this multifarious catalogue much important information can be collected; and it cannot be denied that the homœopathist has not only thrown a new light on the action of many medicines which we daily prescribe, but brought into practical consideration the necessity of attending to dietetic discipline, by an investigation of the several properties of our usual *ingesta*.

It is obvious that any enthusiast who would blindly embrace the foregoing doctrines without serious and deep investigation, and boldly apply the wild theory to practice, would at once throw open the flood-gates of absurdity, and endeavour to destroy, if possible, with one fell swoop, the result of ages of mature study and experience. Hahnemann, to fertilise the fields of science, had recourse to inundation instead of wise and cautious irrigation; and the fury with which he and his rash disciples maintained their opinions materially tended to retard their progress. Truth needeth not violence; its own lustre will beam through surrounding darkness, without being dragged into light.

The objections to Hahnemann's doctrines are glaring. The art of healing, from the dawn of science until the present day, has been more or

less founded on the faculties of reasoning. We are taught, in the first instance, to observe carefully the phenomena of disease, and, by referring effects to probable causes, endeavour, however difficult the task, to trace their catenation. Many of these causes are perhaps sealed for ever in the inscrutable book of our destinies; yet, if we cannot obtain a knowledge of the origin of these disorders, still when we take into mature consideration the complication of all accidental circumstances, and from visible effects seek invisible relations, guided by our experience in anatomy, physiology, and the revelations of pathology, we may find this pursuit less difficult than it may be imagined. But the homœopathist despises, and rejects as idle, all those collateral means of diving into nature's arcana. He bids us to dwell only upon evident symptoms, or, in other words, look to the effects alone, and cast away all thoughts of discovering their causes. Than this argument nothing can be more illogical; for certainly we can scarcely hope to remove effects without striking, as far as in our power lies, at their causation. To deny the existence of any specific affection because we cannot account for its origin, is absurd. As well might we reject the use of medicines known to possess specific properties, from our utter ignorance of their *modus operandi*. The exclusive consideration of symptoms would lead us into lamentable error, since the same symptoms

are observable in various diseases. Similar pains, for instance, may be the symptoms of rheumatism, nephritic affections, calculus; headaches may arise from inflammation, from various and well-known sympathies with distant organs: yet, without seeking to ascertain these relations, the mechanical and empirical homœopathist will prescribe such medicines as are known to occasion pains in the loins, or headaches; only bearing in mind perceptible derangements, heedless of the phenomena of organisation, the state of the secretions and excretions, the history, the rise and progress of the disorder, or the idiosyncrasy of the patient. The liver is diseased; the discovery is of no importance. We have only to attend to the pain extending up the clavicle and shoulder, or the uneasiness experienced in the right hypochondrium: the pulse, the respiration, the condition of the excretions, the temperature of the skin, the appearance of the tongue, are all regarded as minor considerations. It is not *hepatitis* that we are called upon to cure; it is to relieve a pain in the shoulder and in the hypochondrium, or a difficulty of lying on the left side.

No one will pretend to deny that our safest, perhaps our sole, guide in the study of disease is the group of symptoms, that become more and more perceptible during the course of our investigations. It was principally on the study of symptoms that the most learned practitioners of every

age and country grounded their diagnosis and their prognosis; but they never viewed them either singly, or in their complexity, as unconnected with the particular diseases to which they were not only essentially united, but from which they originated, and of the existence of which they were to be considered the diagnostic signs. Therefore did the ancients classify them as principal and accessory, univocal and equivocal, characteristic or common, as they afforded more or less information in our pathologic deduction; and in that light they were weighed with greater or less application, as our judgment could only be formed by the attentive consideration of the phenomena of the organism in health and in disease.

But while the homœopathist's attention is chiefly directed to the discovery of means that can enable him to produce symptoms analogous to those of the disorder, he seems to disregard the laws of sympathy, by which our organism appears to be ruled; a mysterious agency which can only be ascertained by observation and experiment, when, to use the words of a distinguished writer,* "by the former we may be said to listen to nature, by the latter to interrogate her." Health depends upon the due co-operation of all these associations; and one organ in the wonderful machinery cannot be deranged in its functions with-

* Sir Gilbert Blane's Medical Logic.

out influencing others, however distant and unconnected they may appear. In this co-ordination, these vital relations have been very properly divided into mechanical, functional, and sympathetic. Their study constitutes the ground-work of all rational induction. It is not by individual or complex symptoms that we can decide where the want of equilibrium is to be traced. Various have been the theories on this most important subject, and great have been the erroneous ideas dogmatically laid down. The illustrious Bichat himself erred when he maintained that sympathies were aberrations, morbid developements of our vital properties. Sympathies, on the contrary, may be considered as constant phenomena, essential and inseparable from our organism, whether in health or in sickness; and are, if I may be pardoned the expression, co-ordinated to co-operate with each other in their mechanical, their functional, and their sympathetic associations.

An incarcerated hernia causes hiccup, nausea, vomiting. Will the homœopathist tell us that we must seek in his catalogue of innumerable effects some substance which is known to produce similar symptoms? Surely the rupture must first call our attention. This example is adduced as referring to nearly every case in which it might be rashly attempted to separate causes from effects. The mammary glands are vari-

ously affected in uterine diseases; their impressions are reciprocal, yet the uterine affection must be the chief object of our solicitude. A peculiar pruritus is a symptom of calculus. Are we then to administer a homœopathic dose of *can-nabis*, or any other medicine which may give rise to a similar sensation? It may be objected to this observation that these are purely surgical cases, in which we need not be guided by symptoms to discover causes; but it has too frequently happened that nausea and vomiting have been attended to, while the hernia was overlooked, until fatal accidents were manifest. Moreover, a diseased liver, a diseased spleen or kidney, would be just as perceptible as hernia or calculus, if these parts could be brought into view or contact.

It may be said that an erroneous notion of Hahnemann's doctrines on this subject has been taken; it is therefore necessary to quote his own words:

“It may be easily conceived that the existence of a malady presupposes some alteration in the interior of the human organism; but our understanding can only lead us to suspect this alteration in a vague and deceitful manner, from the appearance of the morbid symptoms, the sole guide we can depend on except in surgical cases. The essence of the internal and invisible change is undiscoverable, nor have we any means of guarding against deceptive illusions.” *

* Organon, V.

“The invisible substance that has undergone a morbid alteration in the interior of the human body, and the perceptible changes which are externally developed,—in other words, symptoms,—form by their union what is called disease; but the symptoms are the only points of the malady which are accessible to the physician, the sole indication whence he can derive any intuitive notion, and the principal objects he ought to become acquainted with to effect a cure. From this incontestable truth there is nothing discoverable in disease beyond the totality of its symptoms to guide us in the selection of our curative means.”*

It is not to be supposed that an experienced physician, although a homœopathist, will rest satisfied with this study of symptomatic medicine, without endeavouring to attach these effects to some cause, however occult it may appear; but such a doctrine becomes pernicious, since it bids us close the only book of truth that can reveal our errors,—*post mortem* investigations. Surely, if a group of certain symptoms attend a disease which, when terminating fatally, shows disorganisation in certain viscera, we are not only justifiable in giving to that disorganisation a specific name in our scientific classification and categories, but in considering the symptoms of no other importance than as corroborative of those facts that morbid anatomy daily brings to light.

* Organon, VI.

It is generally admitted that most nosologies are imperfect, and may occasionally lead the young practitioner into error. This is easily accounted for when we consider the Protean forms that the same disease assumes in different individuals; yet, without this classification, the science of medicine could not be studied. A certain arrangement is necessary to simplify all our pursuits in natural science, and to seek a variety we must know the order and the genus.

Had Hahnemann given a better system of nosology than those we possess, and with his truly praiseworthy zeal and industry enumerated the various symptoms of disease as minutely and as accurately as he has recorded the effects of medicinal substances, his labours might have proved a most valuable addition to our store of knowledge.

Let us now direct our attention to the absurdities that these opinions have led to. Solely attentive to effects, and heedless of the disorganisation of various important parts of the human œconomy which morbid anatomy detects, Hahnemann endeavours to discover the occult causes—the original source—the germ—of the malady, which most likely are beyond the reach of our researches; and he boldly affirms that all chronic diseases spring from syphilis, a disposition to warts, and the itch. Now experience has proved that such an assumption is unfounded. The

most healthy subjects, those who attain the finest old age, are more liable to this disgusting affection than the wealthy and cleanly part of the community. The Irish and Scotch peasantry from their infancy, and through life, are most liable to psora; and certainly our soldiers and sailors, amongst whom the disease is common, are not more subject to chronic diseases than any other classes of society, of course not taking into consideration the effects of unhealthy climates.

Syphilis, it will be readily granted, has a considerable share in producing anomalous *sequelæ*, more especially when in combination with mercury. Warts, except of a syphilitic character, were never known to germinate diseases; indeed, they affect the most healthy and robust individuals. Yet to these three miasmatic causes does Hahnemann attribute nearly every disease that was ever known to afflict mankind; while he passes over in silence the predisposition to scrofula, gout, rheumatism, to which we can unfortunately trace with too much certainty the source of much human misery.

That the itch is a disease of great antiquity is a matter of doubt. It has been maintained that it is the same eruptive disorder described by Celsus under the appellation of *scabies*; yet this writer does not allude to its contagious nature, and moreover says, that in some cases it disappears completely, whereas in others it is renewed

at certain periods of the year. Celsus, moreover, includes other forms of pustular eruptions among the different species of scabies, not sufficiently distinguishing them from each other. The character of his scabies is more analogous to the lichen agrius of Willan.

Nor did the ancients consider their *psora* as our itch. It appears to have been the scaly tetter, which they sometimes denominated *psoriasis*, at others *lepra*, a synonymous affection ; but neither pustular nor vesicular. Leprosy, indeed, is a malady totally distinct from the itch in all its characters. Hahnemann asserts that the species of leprosy that afflicted the Jews, and described by their legislator in the thirteenth Leviticus, was the itch ; but any one who will peruse this description will perceive that it does not bear the slightest resemblance to that disorder. It appears, on the contrary, that it was that kind of leprosy called *leucé* by the ancients. Nor was leprosy constantly attended with itching, one of the chief characteristics of the malady, that derives its very name from that sensation. Hippocrates mentions a leprosy that usually occasioned a prurience before rain. There are no diseases in the classification of which more obscurity exists than in cutaneous affections ; and Hahnemann's ideas would tend to increase this confusion, since he tells us that he considers the *frambæsia* of America, the *sibbens* of Norway, the *pellagra* of Lom-

bardy, the *plica* of Poland, the *pseudo-syphilis* of the English, and the *asthenia Virginiensis* of Virginia, complications of his three miasmatic principles ; and he further informs us, no doubt on the faith of some idle tradition, that *psora* lost its external deformity on the return of the Crusaders, who brought from the Holy Land the use of linen shirts, a cleanly and salutary precaution that eradicated the disease at a period when France had no less than two thousand hospitals for the reception of *itch* patients,—a plain proof that he confounds leprosy with itch, since the hospitals he alludes to were distinctly considered leper-houses.

It is certainly true that there does exist in our system a constant predisposition to eruptive affections of some kind or other. We are born heirs to certain exanthematic affections, such as the measles and small-pox ; and it would be as difficult to find a being morally immaculate as an individual free from speck or blemish. Many of these eruptions are considered of a critical and salutary nature ; and the ancients fancied that Nature relieved herself by throwing upon the surface some “peccant humours.” Hence their dread of the retrocession of any of these “breakings out ;” and there is no doubt but that accidents frequently followed their sudden disappearance, in the same manner as drying up an issue or a blister established for some time, and become habitual, may occasion in-

ternal mischief; but to maintain that all chronic diseases arise from three eruptive principles is a most gratuitous and untenable assertion.

Enthusiastically anxious to support his doctrines, Hahnemann is frequently led into erroneous assertions. Thus he tells us that life will suddenly cease if a little water or the mildest liquid is injected in a vein; whereas experience has proved, in the treatment of cholera, that the most stimulating solutions may be thus introduced, not only with impunity, but with salutary results.

It is needless to enter more deeply into the ungracious business of pointing out errors, many of which were evident to Hahnemann himself; since, not only in the several editions of his *Organon*, but in various paragraphs in the same volume, he contradicts himself.

A much more gratifying and important task is now undertaken,—to prove by the evidence of facts, supported by practical reasoning, that the art of healing is more indebted to the homœopathic doctrines than to any system that has hitherto been delivered in our schools.

That the all-bountiful Creator, in permitting, for purposes unknown to us, that mankind should be visited by so many scourges, has also scattered around us means to counteract these evils, cannot be a matter of doubt. Instinct leads animals to find out these salutary agents, and various spe-

cifics have been discovered by man. The rudest savage is in possession of curative substances unknown to the civilized, and performs cures where learning and experience have proved of no avail.

To extend the limits of specifics must be considered a most desirable step towards adding to our means of relieving disease ; and in this pursuit it is impossible to bestow too much praise on the homœopathic observer. Enthusiasm — predilection to a favourite but persecuted system—may induce an ardent proselyte not only to deceive others, but unwittingly to deceive himself. It is therefore not only possible, but probable, that in the experimental investigations of the effects of medicine, Fancy, in her multifarious colours, may have depicted, with apparent fidelity, a state of body and mind that only existed in an exalted imagination ; but when we behold various individuals, distant from each other, and totally unconnected, observing similar results from the exhibition of various medicinal substances, we have no right to call their assertions into doubt. These assertions, moreover, are not laid down dogmatically, but are earnestly recommended to be submitted to the test of experiment. For instance, the homœopathist has found out that certain substances, by diminishing the energy of the heart and arteries, subdue inflammatory action as effectually as venesection. This is a fact daily witnessed, and of which any practi-

tioner can convince himself. It is not asserted that in cases of sudden determination of blood, which require immediate revulsion and abstraction of the vital fluid, homœopathic remedies will be found possessed of sufficient activity to afford prompt relief; but experience has fully proved that in cases which can admit of a few hours' delay, these medicines supersede the necessity of debilitating the patient by a copious loss of blood.

Dr. Paris, in his admirable work on *Materia Medica*, has justly observed, "that observation or experiment upon the effects of medicine is liable to a thousand fallacies, unless it be carefully repeated under the various circumstances of *health* and *disease*, in different climates, and on different constitutions." This has been the main object of the homœopathist; and a further quotation from the above distinguished writer will illustrate the importance of their labours. "It is impossible to cast our eyes over such multiplied groups (of medicinal substances) without being forcibly struck with the palpable absurdity of some, the disgusting and loathsome nature of others, the total want of activity in many, and the uncertain and precarious reputation of *all*, without feeling an eager curiosity to inquire, from the combination of what causes it can have happened that substances at one period in the highest esteem, and of general acknowledged

utility, have fallen into total neglect and disrepute. That such fluctuation in opinion and versatility in practice should have produced, even in the most candid and learned observer, an unfavourable impression with regard to the general efficacy of medicines, can hardly excite our astonishment, much less our indignation; nor can we be surprised to find that another portion of mankind has at once arraigned physic as a fallacious art, or derided it as a composition of error and fraud. A late foreign writer, impressed with this sentiment, has given the following *flattering* definition of our profession: *Physic is the art of amusing the patient while Nature cures his disease.*"

With such a lamentable view of the practice of medicine, can we be too thankful to those observers who strenuously endeavour to rescue it from the dark trammels with which prejudice and interested motives have bound it? In no country more than in Great Britain is such an investigation desirable. We have become proverbial from our incessant abuse of a farrago of medicinal substances; and what is usually termed an *elegant prescription* signifies an amalgam of various drugs and preparations, which most probably by their affinities neutralise the expected effects of each other; for, however great and flattering may have been the discoveries of modern chemistry, many of these affinities are unknown to us. And surely when our labours cannot detect any difference in

the component parts of the purest Alpine atmosphere and the deleterious air of a loathsome dungeon, we cannot expect to form a correct idea of pharmaceutic combinations.

The mere hopes of being able to relieve society from the curse of constant drugging should lead us to hail with gratitude the homœopathist's investigations. That many physicians, but especially apothecaries, who live by overwhelming their patients with useless and too frequently pernicious medicines, will warmly, nay furiously, inveigh against any innovation of the kind, must be expected as the natural result of interested apprehension; and any man who aims at simplicity in practice will be denounced as guilty of medical heresy. Have we not seen inoculation and vaccination branded with the most opprobrious epithets, merely because their introduction tended to diminish professional lucre?

In these remarks upon medicinal combinations it is not meant to infer, that, because they are chemically incompatible, they are ineffectual,—experience has proved the contrary; but no one will contend that, if we can attain the same beneficial results from a single ingredient, administered in small quantities and at distant periods, as from the exhibition of repeated and nauseous doses of pills, powders, draughts, potions, &c. which hang over the bed of sickness, nay of slight derangements, like the sword of Damocles, we have not effected

a most salutary reform in the practice of physic. It is related of one of these ingenious and industrious practitioners, that, having seen a prescription, that only contained half a dozen medicines, he exclaimed, "What ! nothing more?" to which the prescriber replied, "If you choose, sir, we'll step over to the apothecary, and see what else he has in his shop."

Specifics may be divided into two classes, the one producing a peculiar effect upon particular organs, the other producing general results. Thus the action of cantharides and digitalis on the urinary system, of emetics on the stomach, of certain purgatives on the small intestines, and of others on the large ones, are generally known; whereas the action of mercury and opium is still a matter of controversy. A study of these effects constitutes the chief object of the homœopathist; and having determined their peculiar action, their medicinal agents are given singly, and, as we have already observed, in the most minute doses.

It is this division into infinite fractions that has drawn upon the homœopathic practice the denunciation of the allopathic physicians, as it is considered utterly impossible that such imponderable particles can produce any beneficial or prejudicial effect; and the Academy of Medicine of Paris, when officially condemning the doctrine, asserts, in support of this argument, that great danger arises from it "in frequent and serious

cases of disease, where the physician may do as much injury, and cause no less mischief, by ineffectual means as by those which are prejudicial.”

This is perhaps one of the most important points of the homœopathic doctrine. If these fractional doses are inert, and yet the disease is cured, then must the successful treatment be solely ascribed to the dietetic regimen and the efforts of nature. However, experience has afforded abundant proofs that these infinite atoms do produce positive and evident effects. What appears to our feeble organs an atomic fraction may produce phenomena on the organism which we cannot comprehend, but should not therefore be denied. Let one grain of iodine be dissolved in one thousand five hundred and sixty grains of water, the solution will be limpid; let two grains of starch be dissolved in two ounces of water and added to the first solution, and the liquor will forthwith assume a blue tint. In this experiment the grain of iodine has been divided into $\frac{1}{15360}$. Dissolve the four-hundredth part of one grain of arsenic in four hundred thousand parts of water, and the hydric-sulphite will bring it into evidence. Let a five-thousandth part of arseniate of ammonia be dissolved in five hundred thousand parts of water, and the addition of the smallest proportion of nitrate of silver will obtain a yellow precipitate. Numerous experiments of a similar nature may be daily resorted to, to prove that the most minute particles of two substances

possessed of chemical affinities may be brought into action, although diluted *ad infinitum*. But the power that the smallest particle possesses in producing natural phenomena cannot be more evidently proved than by Spallanzani's experiments in fecundation. This physiologist having wrapped up a male frog in oiled silk, fecundation could not take place ; but having collected on the point of a camel-hair pencil a particle of the fecundising fluid, he succeeded in vivifying thousands of eggs. Surprised at this result, he dissolved three grains of the secretion in a pound of water, and one globule of the solution was endowed with the same faculty. In this case the globule of water only contained $\frac{1}{29,946,875,000}$ th part of one grain. This curious experiment has been tried with a similar result by Prevost and Dumas. How imponderable and impalpable must be the effluvium which enables the dog to track his master for miles ! the particle of attar of roses that perfumes a whole chest of clothes ! and what must the power of the aroma be which is preserved for thousands of years in some Egyptian mummies ! Would the vulgar believe in the wonders of the solar and gaseous microscopes unless they were exposed to view ? where we behold in amazement myriads of individuals in one drop of fluid, each of them as perfect in organisation as could have been the mighty mammoth of old or the sagacious elephant of our days, endowed with distinct habits, de-

structive and reproductive propensities and faculties.

It has been advanced by the opponents of homœopathy that the insignificant dose of three or four medicinal globules cannot possess any power, since one might swallow a thousand of them with impunity. To this it is answered, that it is only under certain morbid conditions that these medicines act by their homœopathic affinities. Moreover, it is well known that small doses of medicinal substances will frequently produce more powerful effects than larger quantities. Tartar-emetic, sugar of lead, calomel, afford daily instances of this fact; and it is also admitted that many substances act differently upon the healthy or the sick. An individual in health can take any food without apprehension; but when his functions are deranged, the slightest imprudence in regimen may lead to serious consequences. There are primordial and inscrutable peculiarities in our constitution that cannot be accounted for; and the medicine which relieves one patient will aggravate the sufferings of others. The exhalations of the American *rhus* are deadly to some persons, but innocuous to others; and many poisons which cause instantaneous death to some animals may be given with safety to others. Whence has arisen the controversy regarding damp sheets, which many maintain are not dangerous, simply from the fact that a healthy person with a vigorous

circulation may sleep in them with impunity, when a feeble and languid subject will be exposed to some dangerous determination of blood ?

An illustrious writer already quoted thus expresses himself on this matter :* “ The virtues of medicines cannot be fairly nor beneficially ascertained by trying their effects on sound subjects, because the peculiar morbid condition which they are calculated to remove does not exist.” It may be said that this observation militates against the homœopathic experiments, and to a certain extent it evidently does ; but it cannot be inferred that because a medicinal substance will occasionally act differently in health and in disease, that it may not frequently operate in a similar manner when the morbid condition does prevail, since it is generally admitted that medicines act in a relative manner according to the state of the system. Hence classifications of medicines are too frequently erroneous and imperfect. The doses of medicines determine their effects. Linnæus says, “ Medicines differ from poisons, not in their nature, but in their dose ;” and Pliny tells us aphoristically, “ *Ubi virus, ibi virtus.*” According to their doses, medicines will produce a general or a local effect ; and Dr. Paris, whom I feel much gratification in quoting, lays down as a rule that “ substances perfectly inert and useless in one dose may prove in an-

* Sir G. Blane.

other active and valuable." It will be foreign to the nature of this sketch to enter more fully into this most important subject; but the cases which shall be adduced will be deemed sufficient to convince the most incredulous, of the power of homœopathic doses.

Those who have denied this property have boldly attributed homœopathic cures to dietetic means. Admitting this statement by way of argument, surely, if any observer, by ascertaining the peculiar action of our ingesta, can so regulate the regimen as to produce salutary effects without the aid of medicine, mankind would be most essentially benefited. How many persons do we not daily meet with, who have never taken any medicine since their childhood, when maternal care strove to destroy their digestive organs with apothecary's *stuff*, and who regulate their functions by mere attention to their mode of living. I know one gentleman, a physician, who relieves constipation by green chilies; another, with cold milk; a third, with warm milk: in some habits spinach and sorrel will act as a powerful and safe aperient; in others, cheese, or a hard egg, will operate in a contrary way. Fermented and spirituous liquors all possess specific properties. Some gouty persons cannot drink Claret without bringing on a paroxysm, and others dread a glass of Champagne or Burgundy. Nay, different wines have been known to bring on arthritic

attacks in particular parts ; and I have known Champagne to produce gout in the wrist, and Burgundy in the knee, in subjects who under other circumstances never experienced the disorder in those articulations. Our peculiar aversion, nay, our dread, of various alimentary substances are well known. The odour of cheese, of strawberries, have occasioned fainting and convulsions ; and in certain constitutions several articles of diet bring on indigestions. In short, the study of our ingesta is one of the greatest importance ; and here again the homœopathist is entitled to our best thanks.

This investigation will moreover prompt physicians to be more attentive in enquiring into the various effects of alimentary and medicinal substances on their patients. Instead of hastily drawing out routine prescriptions for such and such a disorder, they will accurately ascertain the physical and moral condition of the subject, taking into due consideration previous habits, predispositions, and pursuits in life. Indeed, it would be desirable that practitioners followed the example of army medical men, who keep an exact register of every individual they attend, and in which is diligently recorded every circumstance connected with the disease and its treatment.

Moral influence has also been called into aid in opposition to this practice, and cures have been attributed to the mere power of fancy

and credulity. We have certainly known superstition and mental imbecility to be productive both of good and evil,—to have created maladies, and cured others; but homœopathy has succeeded when the patient was unaware of the treatment to which he was submitted. But, conceding the point, and admitting that inert substances, such as starch, (and this experiment was resorted to in Paris,) may have obtained singular beneficial results,—the results of a weak imagination, this circumstance alone would be illustrative of the power of moral agency; and who would not gladly wish for a mental relief in lieu of a nauseating and injurious course of medicine.

Others will exclaim, although the homœopathist disavows the *vis medicatrix naturæ*, that he solely succeeds by leaving the malady to the salutary efforts of the constitution. Here again we must admit, that, were we to leave many diseases to run their course, we might be more successful in obtaining a cure than by a rash and detrimental interference, founded on the principle that a physician “must order something.”

But the facts I am about recording, — facts which induced me, from having been one of the warmest opponents of this system, to investigate carefully and dispassionately its practical points,—will effectually contradict all these assertions regarding the inefficacy of the homœopathic doses, the influence of diet, or the agency of the mind;

for in the following cases in no one instance could such influences be brought into action. They were (with scarcely any exception) experiments made without the patient's knowledge, and where no time was allowed for any particular regimen. They may, moreover, be conscientiously relied upon, since they were made with a view to prove the fallacy of the homœopathic practice. Their result, as may be perceived by the foregoing observations, by no means rendered me a convert to the absurdities of the doctrine, but fully convinced me by the most incontestable facts that the introduction of fractional doses will soon banish the farrago of nostrums that are now exhibited to the manifest prejudice both of the health and the purse of the sufferer.

CASE I.

A servant-maid received a blow of a stone upon the head. Severe headache, with dizziness and dimness of sight, followed. Various means were resorted to; but general blood-letting could alone relieve the distressing symptoms, local bleeding not having been found of any avail. The relief, however, was not of long duration, and the distressing accidents recurred periodically, when abstraction of blood became indispensable. Reduced by these frequent evacuations, I was resolved to try the boasted "bleeding globules" of the homœopathist, when, to my great sur-

prise, I obtained the same mitigation of symptoms which the loss of from twelve to sixteen ounces of blood had previously accomplished. Since the first experiment no venesection became necessary, and the returns of the violent headache were invariably relieved by the same means.

CASE II.

An elderly woman was subject to excruciating headache, with an evident determination of blood to the brain. Numerous leeches were constantly applied. The usual remedies indicated in similar affections were resorted to, but only afforded temporary relief. A homœopathic dose of aconite was given, and the relief that followed was beyond all possible expectation.

CASE III.

My much-esteemed friend Dr. Grateloup of Bordeaux was subject to frequent sore-throats, which were only relieved by local blood-letting, cataplasms, &c. but generally lasted several days, during which deglutition became most difficult. I persuaded him to try a dose of the belladonna, neither of us having the slightest confidence in its expected effects. He took the globules at twelve o'clock, and at five P.M. the tumefaction of the tonsils, with their redness and sensibility, had subsided to such an extent that he was able to partake of some food at dinner. The follow-

ing morning all the symptoms, excepting a slight swelling, had subsided.

Since this period Dr. G. has repeatedly tried the same preparation in similar cases, and with equal success. In my own practice, I can record seven cases of *cynanche tonsillaris* which were thus relieved in the course of a few hours.

CASE IV.

H—, a young woman on the establishment of the Countess of —, was suffering under hemiplegia, and it was resolved by Dr. Brulatour and myself to try the effects of the *nux vomica*. At this period the wonders of the homœopathic practice had been extolled to the skies by its advocates, and we were resolved to give one of their supposed powerful preparations a fair trial. The girl was told that the powder she was about to take was simply a dose of calomel; and on calling upon her the following morning we did not expect that the slightest effect could have been obtained by this atomic dose, when, to our utter surprise, the patient told us that she had passed a miserable night, and described to us most minutely all the symptoms that usually follow the exhibition of a large dose of strychnine. It is but fair to mention that the homœopathic treatment did not cure the disease; but the manifest operation of this fractional dose, that could not possibly be denied, is a fact of considerable importance.

CASE V.

Mrs. — of Brompton, Bow, had laboured under hectic fever for several months, and was so reduced by night perspirations, that she was on the very brink of the grave. Called into consultation, I frankly told her husband that every possible means known in the profession had been most judiciously employed, and that I saw no prospect of obtaining relief. At the same time I mentioned to him that the homœopathic practitioners pretended that they had found the means of relieving these distressing symptoms, which he might submit to an experimental trial if he thought proper. He immediately expressed his wish that it should be adopted. I gave her a homœopathic dose of phosphoric acid and stannum; and, to the surprise of all around her, the night sweats did not break out at their usual hour,—three o'clock in the morning. What renders this case still more interesting is the fact of these perspirations recurring so soon as the action of the medicine ceased; a circumstance so evidently ascertained, that the patient knew the very day when another dose became necessary.

CASE VI.

A daughter of the same lady was subject to deafness, which I attributed to a fulness of blood. This cause I clearly ascertained by the relief afforded by the application of a few leeches behind

the ear. I was therefore induced, on a recurrence of the complaint, to endeavour to diminish vascular action by a dose of aconite. The effects were evident in the course of four hours, when the deafness and the other symptoms of local congestion had entirely disappeared.

I could record many instances of similar results, but they would of course be foreign to the nature of this work. I trust that the few cases I have related will afford a convincing proof of the injustice, if not the unjustifiable obstinacy, of those practitioners who, refusing to submit the homœopathic practice to a fair trial, condemn it without investigation. That this practice will be adopted by quacks and needy adventurers, there is no doubt; but homœopathy is a science on which numerous voluminous works have been written by enlightened practitioners, whose situation in life placed them far above the necessities of speculation. Their publications are not sealed volumes, and any practitioner can also obtain the preparations they recommend. It is possible, nay, more than probable, that physicians cannot find time to commence a new course of studies, for such this investigation must prove. If this is the case, let them frankly avow their utter ignorance of the doctrine, and not denounce with merciless tyranny a practice of which they do not possess the slightest knowledge.

Despite this absolute persecution that *Hahnemannism* (as this doctrine is ironically denominat-
ed) is at present enduring, every reflecting and
unprejudiced person must feel convinced that, al-
though its wild and untenable theories may not
overthrow the established systems, (if any one
system can be called established,) yet its study
and application bid fair to operate an important
revolution in medicine. The introduction of in-
finite small doses, when compared at least with the
quantities formerly prescribed, is gradually creep-
ing in. The history of medicine affords abundant
proofs of the acrimony, nay, the fury, with which
every new doctrine has been impugned and in-
sulted. The same annals will also show that this
spirit of intolerance has always been in the *ratio*
of the truths that these doctrines tended to bring
into light. From the preceding observations, no
one can accuse me of having become a blind con-
vert to homœopathy ; but I can only hope that
its present vituperators will follow my example,
and examine the matter calmly and dispassion-
ately ere they proceed to pass a judgment that
their vanity may lead them to consider a final
sentence.

DOCTRINE OF SIGNATURES.

ONE of the most absurd medical doctrines that ever prevailed in the dark æras of science was the firm belief that all medicinal substances displayed certain external characters that pointed out their specific virtues. This absurd theory may be traced to the Magi and Chaldæans, who pretended that every sublunary body was under a planetary influence. To find the means of concentrating or fixing this stellary emanation became a cabalistic study, called by Paracelsus the "*ars signata*;" and talismans of various kinds were introduced by the professors of sidereal science. The word talisman appears to be derived from the Chaldæan and Arabic *tilseman* and *tilsem*, which mean characteristic figures or images.

Paracelsus, Porta, Crollius, and many other philosophers and physicians, cherished this vision, which had been transmitted to them through the dense mists of superstition from more ancient authorities; amongst others may be recorded Dioscorides, Ælius, and Pliny.

The *lapis ætites*, or eagle-stone, which was supposed to be found in the nests of this bird, but which, in fact, is nothing more than a variety of

iron-ore, was said to prevent abortion if tied to the arm, and to accelerate parturition if affixed to the thigh. This conceit arose from the noise that seemed to arise from the centre of the stone when it was shaken: “*Ætites lapis agitat-
us, sonitum edit, velut ex altero lapide præg-
nans.*” From this absurd hypothesis sprung the doctrine; and the very names of plants were supposed to indicate their specific qualities. For instance, the *euphrasia*, or eye-bright, exhibiting a dark spot in its corolla resembling the pupil of the eye, was considered efficacious in affections of that organ. The blood-stone, the *heliotropium*, from its being marked with red specks, was employed to stop hæmorrhage; and is to this day resorted to in some countries, even in England, to stop a bleeding from the nose.* Nettle-tea was prescribed for the eruption called *nettle-rash*. The *semecarpus anacardium*, bearing the form of a heart, was recommended in the diseases of this viscus. The *cassuvium occidentale*, resembling the formation of a kidney, was prescribed in renal complaints; and the pulmonary lichen of the oak, the *sticta pulmonaria*, from its cellular structure, was esteemed a valuable substance in morbid affections of the lungs. Deductions still more absurd, if possible, were recorded: thus saxifrage, and other plants that grow in

* The celebrated Boyle used to apply to his wrists for the same purpose, the moss that grew from a human skull.

rocky places, embodied as it were in calcareous beds, were advised to dissolve the stone; and the *echium*, bearing some faint resemblance to a viper, was deemed infallible in the sting inflicted by this reptile. The divers colours of substances supposed to be medicinal were also another *signature*. Red flowers were given for derangement in the sanguiferous system, and yellow ones for those of the bile. In Crollius's work entitled "*De Signaturis Plantarum*," many curious observations may be found; and Sennert, Keuch, Dieterich, and other writers, displayed great industry in the division of these signatures, which, by the ancients were considered as sometimes denoting no particular quality, and were then called ἀσημοὶ χαρακτῆροι; or σημαντικοί, when their virtues were evident.

Amongst the various influences and indications that were attributed to colours, black was especially considered as the mark of melancholy. Baptista Porta affirms, that if a "black spot be over the spleen, or in the nails, it signifies much care, grief, contention, and melancholy." Cardan assures us that a little before his son's death he had a black spot, which appeared in one of his nails, and dilated itself as he approached his end.

While Nature was thus supposed to mark the virtues of her productions on the external configuration, man assumed the same authoritative power, and marked medicines with certain signs or seals. For this purpose, the ancient physicians

carried signets or rings, frequently worn upon the thumb, and on which were engraved their own names, sometimes written backwards, or the denominations of the nostrums they vended. On one of these seals we find the word *aromaticu*, from *aromaticum*; on another, *melinu*, abbreviation of *melinum*,—a collyrium prepared with the alum of the island of Melos. A seal of this kind is described by Tôchon d'Annecy, bearing the words *psoricum crocodem*, an inscription that has puzzled medical antiquaries. The word *psoricum* was applied to an eruptive affection of the eye; and Actuarius mentions a *collyrium psoricum* of Ælius; while Marcellus Empiricus records the virtues of the *psoricum stratioticum*, which restored sight in twenty days to a patient who had been blind for twelve years; but, when it was applied, it was ineffectual unless the words “*Te nunc resunco, bregan, gresso*,” were religiously pronounced. *Crocodem* was also supposed to apply to *crocus* or saffron, or to *crocodes*, a remedy for sore eyes, mentioned by Galen; while some learned men refer the word to the dejections of the crocodile, that were said to possess various virtues. The earth of Lemnos was sealed with the figure of Diana, and to this day the bolar argils brought from Greece bear various seals and characters; hence the *bolus Armeniae*, and *bolus ruber*, are called *terra sigillata*.

The influence of colours was supposed to have

been so great, that in our own annals we find John de Gaddesden, mentioned by Chaucer, ordering the son of Edward I, when labouring under the small-pox, to be wrapped up in scarlet ; and, to the present day, flannel dyed nine times blue is supposed to be most efficacious in glandular swellings. Tourtelle, a French army physician, has made the following singular observation on this subject : “ I observed that those soldiers of the Republic who were affected with diseases connected with transpiration were more severely indisposed, and not unfrequently exhibited symptoms of putrescency, when their wet clothes had left a blue tinge on the skin, than when they had been merely wetted by the rain.” The explanation of this supposed phenomenon is simply that those men who had been coloured by their uniforms, had, no doubt, been long wearing them saturated by incessant rains, whereas the others had merely been exposed to occasional showers. From this observation I do not pretend to affirm that any deleterious substances in a dye might not occasion dangerous absorption ; but the accidents that may result from such a circumstance could be easily explained without having recourse to any peculiar influence of colour. The colour of cloth, especially in army clothing, may also materially tend to influence cutaneous transpiration, as some colours are more powerful conductors of heat than others ; and it is not impossible that

the French soldiers, not belonging to fresh levies, and who had always been clad in white, might have experienced some difference of temperature when marching under intense heat in dark blue and green uniforms.

Some of the terms used by the signature doctrinarians may puzzle the most learned. The Greeks called them *σημαντικὰ* ; and, in addition to the all-powerful *abracadabra*,—an infallible cure of ague when suspended round the neck,—we find the magic terms of *sator*, *asebo*, *tenet*, *obera*, *rotas*, *abrac*, *khiriori*, *gibel*, engraved upon amulets. For the bite of a mad dog, *pax*, *max*, and *adimax* were irresistible ; and for a fractured arm or a luxation, *araries*, *dandaries*, *denatas*, and *matas* would have set at defiance the most experienced surgeons. I must refer the curious reader on this important subject to the work *De figuris Persarum Talismanicis* of Guffarel, to the *Œdipus* of Kircher, the book of Crollius *De signaturis internis rerum*, and the *Isagoge physico-magico-medica* of Elzer.

The church vehemently denounced these abominations, and we find in the council of Laodicea an injunction forbidding the priesthood the study and practice of enchantment, mathematics, astrology, or the binding of soul by amulets. These incantations were dreaded in every age : thus Lucan,

Mens, hausti nullâ sanie polluta veneni,
Incantata perit.

Philosophers have justly observed that most of the diseases treated and supposed to have been cured by these mystic means, were of a nervous description, and therefore depending in a great measure upon moral influence. Here Faith and Hope assisted the physicians,—two great auxiliaries in every worldly turmoil and trouble. Therefore do we find most of these cures referred to epilepsy, paralysis, melancholy, hypochondriasis, hysteria, as well as to many periodical affections, the return of which is frequently arrested by mental impressions. A fright has checked the paroxysm of an intermittent fever; and many natural functions are impeded or brought on by a similar agency. The sight of a dentist has been often known to calm an excruciating toothache; and there is no complaint that has been cured by more singular means than this troublesome affection. In 1794 a tract was published in Florence by Dr. Ranieri Gerbi, a professor of mathematics in Pisa, entitled *Storia naturale di un nuovo insetto*, which he called *curculio anti-odontalgicus*, and which, being squeezed between the fingers, imparted to them, for the period of one year, the wonderful power of relieving toothache with the mere touch; and the author asserts that by this simple process he cured four hundred and one cases out of six hundred and twenty-nine. This may be considered a branch of magnetism, and has been treated by

Schelhammer in his book *De Odontalgia tactu sedanda*.

This wonderful insect belonged to the *coleoptera*, and was simply the *curculio* and the *coccinella septem-punctata*, well known to entomologists, and which, according to Cipriani Zuccagni, and more particularly Carradori, possessed these singular properties, which, however, subsequent experiments have fully disproved.

While we find some *charms* having sufficient power over our weak imagination to cure diseases, there were others considered sufficiently energetic to occasion death. Sometimes a wax figure was made, supposed to represent the devoted victim, and which was pierced with a pointed instrument, each stab being accompanied by a magic imprecation :

Devovet absentes, simulacraque cerea fingit.

These means the ancients called *carmina*, *incantationes*, *devotiones sortiarie*. It is somewhat strange that this same ceremony of the waxen image to destroy the object of our hate was also resorted to to obtain love. The figure was on these occasions called by the name of the person, and afterwards placed near the fire, when, as the heat gradually melted it, the obdurate heart of the lover was simultaneously softened. At other times two images were thus exposed to heat, the one of clay, the other of wax ; and, while the one melted, the other became more hardened :—a vin-

dictive feeling, to render our own heart insensible, while we mollified that of an ingrate; or perhaps with a view to render that heart inflexible to others, while it propitiated the addresses of the suppliant. Thus Virgil :

Limus ut hic durescit, et hæc ut cera liquescit,
Uno eodemque igni; sic nostro Daphnis amore.
Sparge molam, et fragiles incende bitumine lauros.
Daphnis me malus urit, ego hanc in Daphnide laurum.

The wishes of the ancients for those they loved were sometimes curious, and they often turned round a mystic wheel, praying that the object of their affections might fall down at their door and roll himself in the dirt.

The ancients, who daily witnessed this influence of the imagination in causing and in curing disease, have left us many valuable injunctions on the subject; and Plato thus expresses himself: "The office of the physician extends equally to the purification of mind and body; to neglect the one is to expose the other to evident peril. It is not only the body that by its sound constitution strengthens the soul, but the well-regulated soul by its authoritative power maintains the body in perfect health."

COFFEE.

IT is doubtful to whom we owe the introduction of this article of luxury into our climes. The plant is a native of that part of Arabia called *Yemen*, but we find no mention made of it until the sixteenth century; and it is believed that Leonhart Rauwolf, a German physician, was the first writer who spoke of it, in a work published in 1573. The plant was also described by Prosper Alpinus, in his treatise on Egyptian plants, published in 1591 and 1592. Pietro della Valle wrote from Constantinople in 1615 that he would teach Europe the manner in which the Turks made their *cahué*. This spelling was no doubt incorrect; for, in a pamphlet printed at Oxford in 1659, in Arabic and English, it is written *kauhi*, or *coffee*. Purchas, who was a contemporary of Della Valle, called it *coffa*; and Burton thus speaks of its use: "The Turks have a drink called *coffa*, so named of a berry as black as soot and as bitter, which they sip still of, and sup as warm as they can suffer. They spend much time in their *coffa*-houses, which are somewhat like our alehouses and taverns, and there they sit chatting and drinking to drive away the time and

to be merry together, because they find by experience that kinde of drink so used helpeth digestion and procureth alacrity."

The first coffee-house opened in London was in 1652. A Turkey merchant, of the name of Edwards, having brought with him from the Levant some coffee and a Greek servant, he allowed him to prepare and sell this beverage; when he established a house in St. Michael's Alley, Cornhill, on the spot where the Virginia Coffee-house now stands. Garraway's was the first coffee-house opened after the fire in 1666. It appears, however, that coffee was used in France in 1640; and a sale of it was opened at Marseilles in 1671.

The introduction of this berry was furiously opposed; and it appears that in its native land it was treated with no less severity, since, in an Arabian MS. in the King of France's library, coffee-houses were suppressed in the East. In 1663 appeared a pamphlet against it, entitled "A Cup of Coffee, or Coffee in its colours." In 1672 the following lines were to be found in another publication, "A Broadside against Coffee, or the Marriage of the Turk:"

Confusion huddles all into one scene,
Like Noah's ark, the clean and the unclean.
For now, alas! the drench has credit got,
And he 's no gentleman who drinks it not.

Then came "The Woman's petition against Coffee," which appeared in 1674, in which we find

the following complaint: "It made men as unfruitful as the deserts whence that unhappy berry is said to be brought, so much so, that the offspring of our mighty ancestors would dwindle into a succession of apes and pigmies; and on a domestic message a husband would stop by the way to drink a couple of cups of coffee." It was then sold in convenient penny-worths; — hence coffee-houses, where wits, *quidnuncs*, and idlers resorted, were called "penny universities."

While it had adversaries, coffee was not left without eloquent advocates. Sir Henry Blount, in his *Organon Salutis*, 1659, thus speaks of it: "This coffa-drink has caused a great sobriety among all nations. Formerly apprentices, clerks, &c. used to take their morning-draughts in ale, beer, or wine, which often made them unfit for business. Now they play the good-fellows in this wakeful and civil drink. The worthy gentleman, Sir James Muddiford, who introduced the practice hereof in London, deserves much respect of the whole nation."

It appears, however, that the jealousy with which the use of coffee was viewed even by the government arose more from the nature of the conversations that took place in coffee-houses during moments of public excitement, than from the apprehension of any injury that its consumption might have caused to the public health. In the reign of Charles II. coffee-houses were shut up by a procla-

mation, issued in 1675, as the retailing of coffee “nourished sedition, spread lies, *scandalised great men*, and might therefore be considered a *common nuisance*.” As a *nuisance*, its abolition was considered as not being an infringement of the constitution ! Notwithstanding this Machiavelic torturing of the letter to serve the spirit, the arbitrary act occasioned loud and violent discontent ; and permission was given to re-open coffee-houses, on condition that the landlords should not allow any scandalous papers containing scandalous reports against the government or great men to be read on their premises !

The use, or rather the abuse, of coffee is said to produce feverish heat, anxiety, palpitations, trembling, weakness of sight, and predisposition to apoplexy. Its effects in checking somnolence have been long known. However, the action of this berry differs according to its being roasted or raw. An infusion of torrefied coffee assists digestion, and frequently removes headaches resulting from derangement in the digestive functions. It also neutralises the effect of narcotics, especially opium, and this power is increased by the addition of lemon juice. A similar mixture has been known to cure obstinate agues. Musgrave and Percival recommended its use in asthma : indeed, most persons who labour under this distressing malady seem to derive relief from its use.

Taking into consideration all that has been ad-

vanced in regard to the inconveniences that may attend the use of coffee and tea, they must be considered as overruled by the moral results that have arisen from the introduction of these beverages; and a late writer has observed, that it has “led to the most wonderful change that ever took place in the diet of civilised nations,—a change highly important both in a moral and physical point of view. These beverages have the admirable advantage of affording stimulus without producing intoxication.” Raynal observes, that the use of tea has contributed more to the sobriety of the Chinese than the severest laws, the most eloquent discourses, or the best treatises on morality.

The quality and effects of coffee differ according to the manner in which it is roasted. Bermer states that when he was at Cairo there were only two persons in that great city who knew how to prepare it to perfection. If it be underdone, its virtues will not be imparted, and its infusion will load and oppress the stomach; if it be overdone, its properties will be destroyed, and it will heat the body, and act as an astringent.

The best coffee is the *Mocha*, or that which is commonly called Turkey coffee. It should be chosen of a greenish, light, olive hue; the berries of a middling size, clean and plump.

The bad effects of coffee may in all likelihood be attributed both to its powerful and stimulating

aroma and to its pungent acidity. According to Cadet, this acid is the *gallic*; while Grindel considers it the *kinic*, and Pfaff terms it the *caffaic* acid. When strongly heated, it yields a *pyro-caffaic* acid, from which may be obtained a most pungent vinegar, that has recently been thrown into trade, but I believe with little or no success.

The principle of coffee is the *caffein*, discovered by Robiquet in 1821; and it is to this active principle that its beneficial or baneful effects can be attributed. Recent experiments tend to show that it is possessed of powerful febrifuge virtues. To obtain this result, raw coffee has been used. It gives to water a greenish hue, and thus saturated it has been called the *citrine coffee*. Grindel has used this preparation in the treatment of intermittent fevers in the Russian hospital of Dorpat; he also administered the raw coffee in powder. In eighty cases of this fever scarcely any resisted the power of this medicine, given either in decoction, powder, or extract; but he seems to consider the latter form the most effectual. From this physician's observations, coffee may become a valuable addition to our *materia medica*; and the homœopathic practitioners maintain that they have employed it with great success in various maladies.

AQUA TOPHANIA.

It was for a long time supposed that there actually did exist in Italy a secret poison, the effects of which were slow, and even unheeded, until a lingering malady had consumed the sufferer. No suspicions were excited; or, had they led to any *post mortem* examination, no trace of the terrific preparation's effects could have been detected.

It was towards the year 1659, during the pontificate of Alexander VII, that the existence of this baneful preparation was suspected. Many young women had been left widows; and many younger husbands, who might have ceased to please their wives, had died away. A certain society of young ladies had been observed to meet under the auspices of an elderly matron of rather a questionable character, who had been known in her horoscopic predictions to announce deaths that had but too truly taken place about the period she prophesied. One of the society, it appears, *peached* against her companions, who were all apprehended and put to the torture; and the lady patroness, whose name was Spara, was executed with four of her pupils. This Spara was

a Sicilian, who had obtained the fatal secret from Tofania at Naples. Hence the composition was named *aqua Tofania*, *aqua della Toffana*, and *acquetta di Napoli*. These deadly drops had been charitably distributed by Tofania to various uncomfortable ladies who wished to get rid of their lords, and were contained in small phials bearing the inscription of "*Manna de San Nicolas de Bari*." This hag had lived to an old age, but was at length dragged from a monastery in which she had sought a sanctuary, tortured, and duly strangled, after a confession of her crimes.

Garelli, physician to Charles VI, thus wrote to Hoffmann on the subject: "Your elegant dissertation on the popular errors respecting poisons brought to my recollection a certain slow poison which that infamous poisoner, still alive in prison at Naples, employed to the destruction of upwards of six hundred persons. It was nothing else than crystallized arsenic dissolved in a large quantity of water by decoction, with the addition, but for what purpose I know not, of the herb *cymbalaria* (*antirrhinum*). This was communicated to me by his Imperial Majesty himself, and confirmed by the confession of the criminal in the judicial procedure."

Abbé Gagliani, however, gives a different account of the secret Neapolitan drug. "At Naples," he says, "the mixture of opium and cantharides is known to be a slow poison; the surest

of all, and the most infallible, as one cannot mistrust it. At first it is given in small doses, that its effects may be insensible. In Italy it is called *aqua di Tufinia*: no one can avoid its attacks, since the liquid is as limpid as water, and cannot be suspected. Most of the ladies of Naples have some of it lying carelessly on their toilet-tables with smelling-bottles; but they always can know the fatal phial when they need its contents." A curious observer has remarked on these two preparations, that the mixture of Garrelli was perhaps intended for husbands, while that of Gagliani was for the use of lovers.

This remark appears judicious, since the potion described by the Abbé was evidently intended as an amorous philter. Under that head I have related many curious circumstances. There is no doubt but that these preparations often contained deadly drugs, the perilous qualities of which were most probably unknown to those who made them up without any sinister motives. Plutarch and Cornelius Nepos inform us that Lucullus the Roman general lost his reason, and subsequently his life, from having taken one of these mixtures; and Caius Caligula was driven into a fit of insanity by a philter given to him by his wife Cæsonia, as described by Lucretius;

Tamen hoc tolerabile, si non
Et furere incipias, ut avunculus ille Neronis

Cui totam tremuli frontem Cæsonia pulli
Infudit.

Virgil also alludes to the powerful and baneful nature of the plants employed in magical incantations :

Has herbas, atque hæc Ponto mihi lecta venena
Ipse dedit Mœris ; nascuntur plurima Ponto.
His ego sæpe lupum fieri, et se condere silvis
Mœrin, sæpe animas imis excire sepulcris,
Atque satas alio vidi traducere messes.

Eastern nations fancy that a fascinating power is the gift of virtue. In the *Hitapadesa* of *Vish-nusannan* we find the following aphorism : “ As a charmer draweth a serpent from his hole, so a good wife, taking her husband from a place of torture, enjoyeth happiness with him.” Possibly some receipt of this description may be found in the archives of Doctors’ Commons.

PLICA POLONICA AND HUMAN HAIR.

HAIR may be considered a vegetation from the surface of the body. In a state of health hairs are insensible ; and it is more than probable that they possess no nerves, and that the circulation is carried on in the same manner as in plants. In the bulb or root of the hair, however, the vessels that promote this circulation are numerous, and there we may trace the diseases that affect this beautiful ornament of mankind, more especially in the Caucasian race. Long hair, of course, requires more nutriment than scanty locks, and some physicians have been of opinion that their great length debilitates. Dr. Parr affirms that he has observed symptoms of plethoric congestion to arise after long hair had been suddenly cut off. Vauquelin has made curious experiments on this substance. A solution of black hair has deposited a black matter containing bitumen, sulphur, and iron ; and alcohol extracted from the same coloured hair a whitish and a greyish-green oil. Red hair yielded whitish matter and a blood-red oil. White hair contained phosphate of magnesia, affording a

proof of the disposition towards the formation of calcareous matter in old age. When hair becomes suddenly white under the shock of a severe moral impression, Vauquelin is of opinion that this phenomenon is to be attributed to the sudden extrication of some acid, as the oxymuriatic acid is found to whiten black hair. Parr thinks that this accident may be owing to an absorption of the oil of the hair by its sulphur, as in the operation of whitening woollen cloths.

The *plica* is a curious and disgusting malady, that has been considered a disease of the hair, which, according to vulgar report, secreted and shed blood. This affection is common and endemic in Poland; hence the term *Polonica* that has been given to it. The invasion of this pestilence has been traced to the irruption of the Moguls, from 1241 to 1287, chiefly under the command of Cayuk, grandson of Yenghiz. The most absurd tales were then related of the manner in which this dreaded infection was propagated. Spondanus affirms that it arose from the waters having been poisoned by venomous plants. Pistorius and Pauli relate that these waters were corrupted by the great number of human hearts that the Moguls cast in rivers and in wells. This supposition arose from the unheard-of acts of barbarity perpetrated by the ferocious invaders on the wretched population of Prussia, Poland, Hungary, and Transylvania. Their refined cruelty has been

depicted by Gebhardi, in his History of Hungary, in the most glowing language.

Other historians assert that the plica originated in the East ; such is the opinion of Stabel, Spreugel, and other writers. Rodrigo de Fonseca relates that the Indians, after drinking certain waters, were attacked with a disease in which the hair became agglomerated and matted in the most disgusting manner. Erndtel attributes the malady in Poland to the gluttonous consumption of horse-flesh. Howbeit, Poland has been ever considered the country most exposed to this visitation.

This disease affords a convincing proof of the vascularity of the hair, since it tumefies, augments in capacity so as to allow an evident circulation of blood, as the hairs will often bleed when divided with the scissors. Dr. Kerckhoffs regards the malady as the mere result of the custom among the filthy Poles of letting the hair grow to an immense length, of never combing or cleaning it, and always keeping the head covered with a woollen or leathern cap. Hence he observes that the rich are generally exempt from the affection, which particularly prevails amongst the Jews. With this view of the disorder, he thinks that cleanliness and the excision of the matted hair are sufficient to effect a cure.

It is, however, more than probable that other causes occasion this horrible disease ; and there is

but little doubt that the system is affected by a particular virus. In many instances affections of the head complicate it ; although it is likely that they may result from the constant irritation of the scalp, that sympathises so powerfully with the membranes of the brain.

The different names given to the *plica* indicate more or less the ideas that prevail regarding its nature. The Poles call it *gwozdiec* or *gwodziec*, which signifies a *nail* that splits the wood into which it is driven. In the district of the Roxolans it is termed *koltun*, a *stake*. In Germany superstitious fancies have also given it various curious denominations. It is called *alpzopf* and *schraitelzopf*, as being the result of the *malefices* of vampires and incubi. By some it is asserted that the Moravians, natural enemies of the Poles, not having been able to conquer them by their arms, had recourse to magical art to inflict this scourge ; hence they term it *mahrenflechten*, *mahrenwichtung*. To this day it is called *hexenzopf* and *bichteln*, or unbaptised, alluding, no doubt, to the Jews, who were accused of having introduced the disorder in the deadly hate they bore the Christians ; hence was it also known by the name of *Judenzopf* (*Coma Judæorum*).

Amongst the whimsical ideas to which the *plica* has given rise, the most extraordinary effort of the imagination was that of Hercules Saxoniae. He maintained that the fabulous description of

the heads of the Gorgons and the Furies were derived from this affection: “*Caput Gorgoneum, caput Furiarum, vera humana capita fuisse, et fictitiis poetarum occasionem præbuisse.*”

There are instances on record of infants being born with this loathsome malady. Davidson attributes this circumstance to the mental impressions of the mother: “*Si ita matris ac nutricis superstitioni placere libuerit.*” The length of the matted hair in plica is frequently considerable: Bachstrom relates the case of a Prussian woman whose hair extended beyond the sides of her bed, and she was in the habit of turning it over to make a quilt of it; Caligerus saw a man in Copenhagen whose clotted locks were six feet three inches in length; and Rzeczyinski gives an account of a woman whose hair measured six ells. In the museum of Dr. Meckel, at Halle, is to be seen a specimen of the disease eight feet long. The beard and the hair of other parts of the body are equally liable to these attacks; while the affection has been observed in horses, dogs, and other animals. A curious case is related on this subject by Dr. Schlegel: A drunken coachman was carried away by a pair of spirited young horses, who precipitated themselves, with the fragments of the broken carriage, into the Moskwa. One of the animals was drowned; but the other contrived to extricate itself, and swam ashore. It continued sick for a considerable time, and, on

its convalescence, the plica broke out in its entire coat.

The assertion that the hairs become endowed with sensibility in this disorder is unfounded. The pain is experienced in the root or bulb; thus a painful sensation is occasionally felt when a lock of hair has been turned back under the night-cap. There is little doubt that the plica is to be attributed to a specific virus, which pervades the whole system unless successfully treated. The most serious accidents have arisen from its having been neglected; and Starnigelio gives the following horrible account of its ravages. “Magno omnium malo magnoque cruciatu divagatur: infringit ossa, laxat artus, vertebrae eorum infestat. Membra conglobat et retorquet; gibbos efficit, pediculos fundit, caputque aliis atque aliis succedentibus ita opplet, ut nequaquam purgari possit. Si cirri raduntur, humor ille et virus in corpus relabitur, et affectos, ut supra scriptum est, torquet; caput, manus, pedes, omnes artus, omnes juncturas, omnes corporis partes exagitat.”

Amongst the various specifics recommended for the cure of plica, is the *lycopodium*, hence called *herba plicaria*; the *vinca*, or *perventia*. The *δαφνοειδές* and *καμαιο δαφνη* of the Greeks was also extolled, possibly from its supposed powers in cases of incantation, whence Apuleius calls it “*victoria, quod vinceret pervinceretque injuriam temporis.*” This is the plant for which Rousseau felt

such a predilection, that in after life he never beheld it without experiencing a delightful recollection of the pleasures of his boyhood. Its flowers are considered the symbol of virginity, and in Flanders are still called *Maegden-palm*. In Etruria maidens were crowned with a wreath of it on their funerals.

The decay and fall of the hair is an accident of frequent occurrence. This unpleasant drawback on vanity has been termed *alopecia*, from the Greek word ἀλωπήξ, *vulpes*, a fox; this animal and the wolf being said to lose their hair and become bald sooner than any other quadruped. The Arabian writers were impressed with the same belief, and named the affection *daustaleb*, literally the *wolf disease*. Baldness is more frequent in males than in females; and it has been observed that emasculated subjects are exempt from its visitation.

Amongst the singular anomalies that characterise our ideas, the respect in which hair (naturally unclean unless most carefully attended to) was held at various periods, is as singular as the fond devotion with which it is treasured when having belonged to the objects of our affections. In ancient Rome neglected hair was the badge of bondage, and slaves were distinguished by the *capillum passum, fluxum, et intonsum*. Free men, on the contrary, took great care of it; and the term *cæsaries* is said to be derived from the frequency of

its cutting, while *coma* alluded to the great attention paid to its ornamental appearance. The Gauls wore long hair, and their country was thence called *Gallia Comata*. The German chiefs, deprived of their rank and power, were shorn of their locks as a mark of degradation and loss of strength. Shaving the heads of criminals is to this day considered ignominious.

In ancient mythology hair was the symbol of life. All dead persons were supposed to be under the jurisdiction of the infernal deities, and no man could resign his life until some of his hair was cut. Euripides introduces Death going to cut off some of the hair of Alcestis when doomed to die instead of her husband Admetus; and Virgil describes Dido unable to resign her life from her hair not having been cut off by Proserpine, until Iris was sent by Juno to perform the kind office :

“ Hunc ego Diti

Sacrum jussa fero, teque isto corpore solvo.”

Sic ait, et dextra crinem secatur; omnis et unâ

Dilapsus calor, atque in ventos vita recessit.

Locks of hair were suspended over the door of the deceased to show that the family were in mourning. On these occasions the hair was torn, cut off, or shaved. It was then sometimes strewed over the dead body, or cast on the funeral pile. On the demise of great men, whole cities and communities were shorn, while animals shared

a similar fate. Admetus, on the death of Alcestis, ordered this operation to be performed on his chariot horses : and when Masistius was slain by the Athenians, the Persians shaved themselves, their horses, and their mules ; Alexander, not satisfied with this testimony of grief, ordered the very battlements of a city to be knocked down, that the town might look bald and shorn of its beauty.

While in some cases bald heads were expressive of affliction, in others long hair denoted grief ; Joseph allowed his hair to grow during his captivity ; and Mephibosheth did the same when David was banished from Jerusalem. Juvenal informs us that mariners, on their escape from shipwreck, shaved their heads ; and Lycophron describes long and neglected hair as a sign of general lamentation.

To be shaved by barbers was a proof of cheerfulness ; but to cut off one's own hair denoted mourning. Hence Artemidorus informs us that for a man to dream of shaving himself was a pre-sage of some calamity. However, this ceremony may in its signification be attributed to the customs of various nations. Where the hair was generally worn short, its length indicated grief, and *vice versâ*. The filth of long and neglected hair might also have been considered a proper and respectful mark of tribulation, for the ancients fancied that rolling themselves in the dirt was a

convincing proof of affection ; and we see Æneus besmearing himself with nastiness on the death of his son Meleager :

Pulvere canitiem genitor, vultusque seniles
Fœdat humi fusos, spatiosumque increpat ævum.

Shaving was also a nuptial ceremony, when virgins presented their hair to Venus, Juno, Minerva, Diana, and other propitious divinities. At Trœzene virgins were obliged to sacrifice their hair to Hippolytus, the son of Theseus, who died for his chastity. The Megarensian maidens presented them to Sphinoe, daughter of Alcathous, who died a virgin. Statius records this ceremony when speaking of Minerva's temple :

Hic more parentum
Insides, thalamis ubi casta adolescerat ætas,
Virgineas libare comas ; primosque solebant
Excusare toros.

To what strange and absurd origins can we retrace many of our customs ! and what anomalies pervade our capricious fancies ! We devour with kisses a pomatumed ringlet cut from the head of the fair one we love, while we would willingly kick our cook out of doors if perchance one of her stray hairs was discovered in a dish !

ANIMAL MAGNETISM.

ARE we to give credit to the various observations that record the wonderful effects of animal magnetism ; or should we reject them as the impostures of knaves, or the result of the credulity of fools ? It is now near half a century since this method of relieving diseases has been introduced by modern practitioners. Thousands of disinterested and candid witnesses have corroborated their assertions, and testified to their veracity. How, then, are we authorised to treat this doctrine as visionary or fraudulent ? The most learned bodies have not thought it derogatory to their dignity to investigate the matter ; and, despite of opposition, ridicule, and contempt, the practice obtains to the present day. It has, no doubt, been materially impeded in its progress by the invectives of occasional scepticism ; but the slurs of the sceptic may be compared to those accidental opaque bodies commonly called spots on the sun, which frequently flit before its disk, and, intercepting the solar rays, occasion a hibernal chill in the midst of the summer's heat. They are but transient obstacles to the transmission of light,

and the bright orb beams with increased refulgence when these dark stigmas disappear. Such will ever be the case with science, and those discoveries which accelerate its inevitable empire on the human understanding. Persecution may be considered as the harbinger of truth, or, at any rate, of that investigation which directs us to it. Pythagoras was banished from Athens; Anaxagoras was immured in a dungeon; Democritus was considered a maniac, and Socrates condemned to death. An advanced and honourable old age did not protect Galileo against his barbarous persecutors. Varolius was decreed an infamous and execrable man for his anatomical discoveries, and our immortal Harvey was looked upon as a dangerous madman. Inoculation and vaccination were deemed impious attempts to interfere with the decrees of Providence, and potatoes and tobacco looked upon as infernal importations.

Magnetism may be defined a reciprocal influence which is supposed to exist between individuals, arising from a state of relative harmony, and brought into action by the will, the imagination, or physical sensibility. This influence is said to exist in a peculiar fluid, transmissible from one body to another under certain conditions of each individual, without which the expected effects are not manifest. Under these conditions, the effects of animal magnetism are obtained by manual application, by gestures, words, and even

looks ; more frequently, as may be easily conceived, with nervous, weak, and impressionable individuals. By these means magnetisers affirm that they can effect cures when all other remedial endeavours have been of no avail, either when the patient is awake or in a state of artificial somnambulism.

The history of this doctrine is curious. The ancients fully admitted the power of sympathy in the cure of diseases ; but generally attributed its action to the interference of Divinity, or the operation of sorcery and enchantment. A remarkable affinity can be traced between modern magnetism and its supposed phenomena, and the relations of the Pythian and Sibylline oracles, the wonders of the caverns of Trophonius and Esculapius, and the miraculous dreams and visions in the temples of the gods. Amongst the Hebrews, the Egyptians, the Greeks, and Romans, we constantly discover traces of this supposed power of manual apposition, friction, breathing, and the use of the charms of music and mystic amulets. The Egyptian priesthood were considered as possessing a divine attribute in healing diseases. Prosper Alpinus, in his treatise on the medicine of the Egyptians, informs us that mysterious frictions were one of their secret remedies. The patients were oftentimes wrapped in the skins of animals, and carried into the sanctuary of their temples to be assisted by visions, that ap-

peared either to them or to their physicians, who pretended that Isis was the immortal source of these celestial inspirations. The same divine assistance was firmly believed by the Hebrews. It was intimated to Miriam and Aaron that the Lord would make himself known to them in a vision, and speak to them in a dream; and we find in Deuteronomy that the signs and the wonders of prophets and dreamers of dreams were to be considered as the abominations of idolaters, who were to be put to death without pity. This anathema on false prophets was not unfrequently rigorously carried into execution, and we read in Kings the destruction of all the worshippers of Baal. Ahab marched upon Ramoth-Gilead by the advice of his prophets.

The sympathetic power of corporeal apposition was illustrated when Elisha, to revive the widow's child, stretched himself three times upon him and prayed to the Lord. When Elisha restored the child of the Shunamite to life, he lay upon it, put his mouth upon his mouth, his eyes upon his eyes, and his hands upon his hands, and he stretched himself upon the child, and the child opened its eyes. Miracles were generally wrought by manual application or elevation. Naaman expected that Elisha would have stricken his hand over the place to cure his leprosy; and we find in the Scriptures that our SAVIOUR healed the sick upon whom he laid his hands. Amongst the

Greeks we again see the same ceremonies performed on all wonderful recoveries. Plutarch tells us that Pyrrhus cured persons with diseased spleens by passing his hand over the seat of the malady. Ælianus informs us that the Psylli performed their cures by stretching themselves upon the patients, and making them swallow water with which they had rinsed their mouths; and he also mentions that those who approached these mysterious agents were seized with a sudden stupor, and deprived of their intellects until they had left them. Apollonius brought a young girl to life by touching her, and leaning over her as though he were whispering some magic words in her ear; and Origenes affirms that there were sages who dispensed health with their mere breath. Vespasian restored sight to the blind by rubbing their eyes and cheeks with his saliva, and cured a paralytic by merely touching him: the same emperor kept himself in perfect health by frequently rubbing his throat and his body. From a passage of Plautus, it appears that this manual application was resorted to in his days to procure sleep. Mercury is made to say, "*Quid si ego illum tractem, tangam ut dormiat;*" to which Sosia replies, "*Servaveris, nam continuas has tres noctes pervigilavi.*"

Pliny maintains that there exist persons whose bodies are endowed with medicinal properties; but he admits, at the same time, that imagination may produce these salutary emanations. Celsus informs

us that Asclepiades by friction could calm a phrensy; and farther states, that when these frictions were carried to too great an extent, they brought on a lethargic state. Cælius Aurelianus recommends manual frictions for the cure of pleurisy, lethargy, and various other maladies, describing the manner in which they are to be conducted: for instance, in epilepsy, the head and forehead are to be chafed, then the hand is to be carried gently over the neck and bosom; at other times, the extremities of the hands and feet are to be grasped, that “we may cure by the very act of holding the limb.”

That remedies were indicated in a state of somnambulism is affirmed by Tertullian, who thus speaks of one of the followers of Prisca and Maximilla, two women who foretold future events when they fell into an ecstatic swoon: “She conversed with angels, discovered the most hidden mysteries, prophesied, read the secrets of the heart, and pointed out remedies when she was consulted by the sick.” He thus describes ecstasy in his treatise *De Anima*: “It is not sleep, for during sleep all reposes; whereas in ecstasy the body reposes, while the soul is actively employed. It is therefore a mixed state of sleep and ecstasy which constitutes the prophetic faculty, and it is then that we have revealed unto us, not only all that appertaineth to honour, to riches, but the means of curing our diseases.” St. Stephen relates the

case of a youth who was in such a lethargic state, that he was insensible to all painful agents, and could not be awakened ; but, when he recovered his senses, he declared that two persons, the one aged, the other young, had appeared to him and recommended sea-bathing. He complied with the instruction, and was cured. But the miracles of paganism were soon discredited, when the relics and tombs of saints were resorted to instead of the temples of the false gods ; and priests assumed the power once held by their Chaldean and Egyptian predecessors, and the Druids of Gaul. The beatified were not only physicians during their life, but medicinal after death. St. Gregory of Tours tells us that St. Cosmus and St. Damian were not only able physicians during their blessed existence, but assisted all those who consulted them in their tombs, not unfrequently appearing to them in visions, and prescribing the proper remedies. A saint's breathing upon a veil, and then placing it on the head of a demoniac, infallibly cast out the evil one ; and St. Bernard never failed in his exorcisms, by making the possessed swallow some water in which he had dipped his hands. St. Martin stopped the most fearful hemorrhage by merely touching the patient with his garment. The shrines of St. Litardus, St. Anthony, and various other saints, lulled to sleep, and inspired with miraculous visions those who sought their aid.

However, as the progress of intellect dispelled the dark clouds that shrouded the middle ages in superstitious and credulous prejudices, philosophy endeavoured to investigate the nature of this mysterious agency, which priests had for so many centuries usurped as their special gift and property. Sceptic as to supernatural powers in the common occurrences of life, philosophers attributed these phenomena to some peculiar principle with which organised bodies were endowed, and hence arose the dawn of the doctrine of animal magnetism. So early as 1462, Pomponatius of Mantua maintained, in his work on incantation, that all the pretended arts of sorcery and witchcraft were the mere results of natural operations; he farther gave it as his opinion, that it was not improbable but that external means, called into action by the soul, might relieve our sufferings; that there, moreover, did exist individuals endowed with salutary properties, and it might therefore easily be conceived that marvellous effects should be produced by the imagination, and by confidence, more especially when they are reciprocal between the patient and the person who assists his recovery; physicians and men of sense being well convinced that if the bones of any animal were substituted for those of a saint, the result would be the same. It need not be added that our author was violently persecuted for this heretical doctrine. Two years after, Agrippa, in Cologne, asserted that the

soul inflamed by a fervent imagination could dispense health and disease, not only in the individual himself, but in other bodies. In 1493, Paracelsus expressed himself in the following language: "All doubt destroys work, and leaves it imperfect in the wise designs of nature. It is from faith that imagination draws its strength. It is by faith that it becomes complete and realised. He who believeth in nature will obtain from nature to the extent of his faith. Let the object of this faith be real or imaginary, you nevertheless reap similar results, and hence the cause of superstition."

Cardanus, Bacon, Van Helmont pursued this study; and the latter physician, having cured several cases by magnetism, was considered a sorcerer, and seized by the Inquisition. Magnetism, he observed, "is a universal agent, and only novel in its appellation, and paradoxical to those who ridicule everything they do not comprehend, or attribute to Satan what they cannot understand. The name of magnetism is given to that occult influence which bodies possess on each other at various distances, either by attraction or by impulsion. The means or the vehicle of this influence is an ethereal spirit, pure, vital, (*magnale magnum*,) which penetrates all matter, and agitates the mass of the universe. This spirit is the moderator of the world, and establishes a correspondence between its several parts and the powers with which it is endowed. We can attach to a

body the virtues that we possess, communicate to it certain properties, and use it as the intermediate means to operate salutary effects. I have hitherto withheld the revelation of this great mystery. There exists in man a certain energy, which can act beyond his own person according to his will or his imagination, and impart virtues and exercise a durable influence even in distant objects. Will is the first of powers." Van Helmont fully admitted the wonderful faculties that somnambulism seemed to develope, and informs us that it was chiefly during his sleep that he was inspired with his doctrines. One might have imagined that these philosophic researches would have put an effectual stop to the progress of superstition, or rather of persecution; yet their promulgation could not save Urbain Grandier, and many supposed sorcerers, from a barbarous death.

It was in the beginning of the eighteenth century that various experiments were made with the loadstone in researches regarding electricity. In 1754, Lenoble had constructed magnets that could be used with facility in the treatment of various diseases. In 1774, Father Hell, a Jesuit and professor of astronomy at Vienna, having cured himself of a severe rheumatism by magnetism, related the result of his experiments to Mesmer. This physician was immediately struck with observations that illustrated his own theories respecting planetary influence. He forthwith pro-

ceeded to procure magnets of every form and description for the gratuitous treatment of all those that consulted him ; and, while he widely diffused his doctrines, he sent his magnets in every direction to aid the experimental pursuits of others, and thus expressed himself on the subject in a memoir published in 1779 : “ I had maintained that the heavenly spheres possessed a direct power on all the constituent principles of animated bodies, particularly on the *nervous system*, by the agency of an all-penetrating fluid. I determined this action by the INTENSION and the REMISSION of the properties of matter and organised bodies, such as gravity, cohesion, elasticity, irritability, electricity. I supported this doctrine by various examples of periodical revolutions ; and I named that property of the animal matter, which renders it susceptible to the action of celestial and earthly bodies, ANIMAL MAGNETISM. A farther consideration of the subject led me to the conviction that there does exist in nature an universal principle, which, independent of ourselves, performs all that we vaguely attribute to nature or to art.”

Mesmer, as might have been foreseen, became the object of persecution and of ridicule, and withdrew to Switzerland and Suabia. It was there that he met with a certain Gassner of Braz, who, having fancied that an exorcism had relieved him from a long and painful malady, took it into his head to exorcise others. He considered the greater

part of the disorders to which flesh is heir as the work of the Devil, and he counteracted his baneful influence in the name of our SAVIOUR. He divided these diabolical visitations into *possessions*, *obsessions*, and *circumsessions*; the latter being trifling invasions. For the purpose of ascertaining whether his patients laboured under natural or infernal ailments, he conjured Satan to declare the truth. If, after three solemn interpellations, and signs of the cross, the Devil did not answer, the disorder was considered as coming within the province of medicine; but if, on the contrary, the patient fell into convulsions, Gassner drew forth his stole and crucifix, and in the name of the Redeemer commenced rubbing and pinching, sometimes in the most indecorous manner, when females were submitted to his manipulations. When his attempts failed, he accused the patient of want of faith or of the commission of some deadly sin, which baffled his endeavours. His fame became so universal that the Bishop of Ratisbon sent for him, and he exercised his art under his auspices; at one period the town was so crowded with his patients, that ten thousand of them were obliged to encamp without the walls. It appears that this adventurer had the power of acting upon the pulse, and could increase or retard it, render it regular or intermittent, and was even reported to paralyse limbs and produce tears or laughter at will. It is scarcely credible, yet the celebrated

De Haen, one of the most distinguished and learned practitioners in Germany, not only believed in the power of this Gassner, but actually attributed it to a paction with the Devil.

Mesmer was not so credulous, and explained the miraculous cures of Gassner by the doctrines of the animal magnetism which he advocated. From Suabia he returned to Vienna, whence he was expelled as a quack ; and in 1778 arrived in Paris, a capital that had patronised Cagliostro and St. Germain, and was ever ready to be deceived by ingenious empiricism. In 1779 he published a paper on the subject, in which he maintained twenty-seven propositions to establish his supposed influence between the celestial bodies, the earth, and animated matter, produced by a fluid universal, subtile, susceptible of receiving, transmitting, and communicating its impressions, on mechanical principles until then unknown, and producing alternate effects of flux and reflux. This powerful agent, he said, acted chiefly on the nervous system. The human body, moreover, according to his notions, possessed properties analogous to the loadstone, and presenting an opposed polarity, subject to various modifications, which either strengthened or weakened it. The action of animal magnetism, according to him, was not confined to animal matter, but could be equally communicated to inanimate bodies at various distances. Mirrors could reflect and increase its

power like the rays of light, and sound could propagate and increase it. This magnetic property, he farther stated, could be accumulated, concentrated, and transported at pleasure, although there did exist animated bodies possessed of properties so opposite as to render this powerful agent inefficient. He found that the loadstone was susceptible of animal magnetism, and of its opposite virtues, without any apparent influence on its power over iron and the needle; whence he concluded that there existed a wide difference between animal and mineral magnetism.

Mesmer soon found a warm advocate of his doctrines in a Dr. D'Eslon, and animal magnetism became in fashionable vogue. Not only were men and animals subjected to their experiments, but this wondrous influence was communicated to trees and plants, and the celebrated elm-tree of Beaugency was magnetised by the Marquis de Puységur and his brother; while the enthusiastic D'Eslon absolutely went knocking from door to door to procure patients. Breteuil, who was then one of the ministers, offered Mesmer a yearly pension of thirty thousand francs, with a sum of three hundred thousand francs in cash, with the decoration of St. Michael, if he would consent to reveal the mysteries of his science to the medical faculty. This tempting offer our magnetiser indignantly rejected, and a secret society was instituted under the name of the Lodge

and Order of Harmony. The charms and the power of youth and music were not neglected as auxiliaries to propagate the fashionable doctrine. Young men of elegant manners and athletic form were initiated in the practice of magnetising, and the *salons* of Paris consecrated to this worship (for such it might have been termed) were crowded with the most fascinating women that the gay metropolis of France could produce. Most of these females, empassioned by nervous excitability, as loose in their morals as to outward appearance they were fervent in their devotions, abandoned themselves without reserve to the delightful sensations that magnetism and its surrounding machinery were said to afford. In their ecstasies, their hysteric attacks, their spasms, Mesmer, the high-priest, fancifully dressed, but in the height of fashion, with his youthful acolytes, endeavoured to soothe and calm the agitation of their enchanting patients by all the means that Mesmerism could devise.

It soon became pretty evident that these phenomena were solely to be attributed to the influence of imagination; and Doppet, one of the most ardent disciples of the new creed, frankly avowed that "those who were initiated in the secrets of Mesmer entertained more doubts on the subject than those who were in thorough ignorance." Notwithstanding this evidence brought forward against Mesmer's fascinating practice, he was

warmly eulogised even by high churchmen ; and Hervier, a doctor of Sorbonne, did not hesitate to assert that the Golden Age was on the return ; that man would be endowed with fresh vigour, live for the space of five generations, and only succumb to the exhaustion of age ; that all the animal kingdom would enjoy a similar blessing ; while magnetised trees would yield more abundant and delicious fruits. This belief of the good ecclesiastic arose, according to his own assertion, from his having been cured of some cruel disorder by magnetism, while all his intimate acquaintances insisted that he had never ceased to enjoy perfect health.

Such were the circumstances that attended the introduction of animal magnetism, which to this day is defended and maintained by ardent proselytes. Sound philosophy can only attribute its wonderful phenomena, many of which cannot be denied, to the influence of the imagination, and the all-powerful deceptive agency of faith. It is an incontrovertible fact that the nervous system may be so worked upon, thrown by various secret and physical means into such a morbid condition, that results bordering upon the miraculous in the eyes of the credulous may be easily obtained. Every circumstance that appears to differ from the usual course of nature is deemed miraculous by the ignorant ; and the Greek proverb θαύματα μαγείας, plainly maintains that miracles are only for

the simple. In fact, who are the persons who in our times cry out "miracle," but weak and timid men, worn out by excesses or age, labouring under the influence of terror; silly old women, who have not the power of reasoning; or nervous and enthusiastic females, who seek for some saving clauses in a pact between vice and virtue, depravity and religion.

All the wonders of the creation are miraculous, if we are to consider as such those phenomena that are, and most probably will ever remain, beyond our humble and miserable comprehension. The manifestations of the Creator's will are daily exhibited in stupendous forms that strike the ignorant with awe, while they lead the man of science to bow in grateful veneration to that Almighty power that has harmonised the creation for our well-being, if we would only obey the sublime dictates of his laws, without attempting to scrutinise their spirit by quibbling with their letter.

There can be but little doubt that the wonders of magnetism may be referred to the imagination; yet some of the phenomena must excite our surprise, and may occasion some degree of hesitation in invariably attributing its results to fancy. The Academy of Medicine of Paris having appointed a commission of twelve members to examine and report upon it, their inferences were as follows :

1. The effects of magnetism were not evident in healthy persons, and in *some* invalids.

2. They were *scarcely* apparent in others.

3. They *often* appeared to be the result of ennui, monotony, and the influence of imagination.

4. Lastly, *they are developed independently of these causes, very probably by the effect of magnetism alone.*

The points of this report that I have printed in italics prove most clearly that the members of the commission, all of whom were decidedly adverse to the doctrine, were convinced, at least to a certain extent, by the experiments they had witnessed, of some singular powers residing in this mysterious science. Such must have been the case, since we find three members seceding from their associates, Laennec, Double, and Magendie, all well known as distinguished physiologists, somewhat inclined to pure materialism, and what may be termed *matter-of-fact* men, who would hesitate in yielding their belief to any assertion that the scalpel could not demonstrate. Notwithstanding the protest of these gentlemen, the following were the conclusions of the commission :

1. Contact of the thumbs and magnetic movements are the means of relative influence employed to transmit magnetic action.

2. Magnetism acts on persons of different age and sex.

3. Many effects appear to depend on magnetism alone, and are not reproduced without it.

4. These effects are various. Sometimes magnetism agitates, at other times it calms. It generally causes acceleration of the pulse and respiration, slight convulsive movements, somnolency, and in a few cases somnambulism.

5. The existence of peculiar characters of somnambulism has not yet been proved.

6. It may, however, be inferred that this state of somnambulism prevails when we notice the developement of new faculties, such as *clairvoyance* and intuitive foresight, or when it produces changes in the physiological condition of the individual, such as insensibility, sudden increase of strength, since these effects cannot be attributed to any other cause.

7. When the effects of magnetism have been produced, there is no occasion on subsequent trials to have recourse to *passes*.* The look of the magnetiser and his will have the same influence.

8. Various changes are effected in the perceptions and faculties of those persons in whom somnambulism has been induced.

9. Somnambulists have distinguished with closed eyes objects placed before them. They have then read words, recognised colours, named cards, &c.

10. In two somnambulists we witnessed the

* The term that designated magnetic manipulation.

faculty of foreseeing acts of the organism to take place at periods more or less distant. One announced the day, the hour, and the minute of the invasion and recurrence of an epileptic fit; the other foresaw the period of his recovery. Their anticipations were realised.

11. We have only seen one somnambulist who had described the symptoms of the diseases in three individuals presented to her.

12. In order to establish justly the relations of magnetism with therapeutics, one must have observed the effects on a number of individuals, and have made experiments on sick persons. Not having done this, the commissioners can only say, they have seen too few cases to enable them to form a decisive opinion.

13. Considered as an agent of physiological phenomena, or of therapeutics, magnetism should find a place in the range of medical science, and be either practised, or its employment superintended, by a physician.

14. From the want of sufficient opportunities, the commission could not verify the existence of any other faculties in somnambulists; but its reports contain facts sufficiently important to conclude that the Academy ought to encourage researches in animal magnetism, as a curious fact of psychology and natural history.

This report was impugned by Mr. Dubois, in what he calls his rational conclusions, which of

course maintain that those of the commission were irrational. However, in this paper he merely affirms his own incredulity, without supporting it upon any grounds of experiment or observation ; and therefore his manifest must be considered an individual attempt to refute the assertions of a body of scientific men, who, after diligently and maturely weighing the arguments in favour of a doctrine that they were previously disposed to condemn as unworthy of research, came to the conclusions that we have seen.

While the French Academy did not consider it beneath their dignity to investigate this doctrine, in other parts of Europe it attracted the attention both of the reigning monarchs and the most distinguished physicians. In Prussia, Hufeland, who had been one of the warmest opponents of magnetism, became a convert ; and a clinical hospital was established in Berlin, by order of the government, to observe and record its phenomena. At Frankfort and Groningen, Drs. Passavant and Bosker published works on the subject ; the latter having translated the critical history of Deleuze. At Petersburg, Dr. Stoffregghen, first physician of the Emperor, pronounced himself with several colleagues in its favour ; and most of these distinguished men seemed to partake of the opinion of the justly celebrated Orfila, who certainly may be considered as an authority, and who thus expressed himself on the subject :

“ If there exists trickery and quackery in animal magnetism, its adversaries are too hasty in refusing to admit all that has been asserted in regard to its effects. The testimony of enlightened physicians should be considered as proofs. If the magnetic phenomena appear extraordinary, the phenomena of electricity appeared equally marvellous in its origin. Was Franklin to be considered a quack when he announced that with a pointed metal he could command thunder? Whether magnetism acts in good or in evil, it is clearly a therapeutic agent, and it behoves both the honour and the duty of the Academy to examine it.”

Such is the present state of this curious science. To what credit it may be entitled, and how far it may become a useful medical agent, experience alone can decide. At the same time, it would be unjust to assert, in our present ignorance, that all the learned and independent men who support it are either fools or knaves.

POISONOUS FISHES.

THE deleterious qualities of certain fishes have long been the subject of medical conjectures. What is somewhat singular, and most difficult to account for, is the circumstance of the same fish being wholesome in some waters, and deadly in others, although under the same latitude, and when, to all appearance at least, no local cause can be discovered to which we might reasonably attribute this fatal property, so powerful and prompt in its action that rapid death will ensue whenever a small portion of the fish has been eaten. Such, for instance, is generally the case with the yellow-bill sprat, the *clypea thrissa*.

Some naturalists attribute this poison to copper banks, on or near which the fish may feed. The absurdity of this opinion has been fully demonstrated; in the first instance, no such copper banks have been discovered in the West Indies, and these fish abound on the coasts of islands of coral formation. Moreover, it is not likely that this mineral should saturate the animal; and, even if it could produce this effect, the entire body would in all probability be affected, whereas the poison seems to lie in particular parts, chiefly in

the intestines, the liver, the fat, &c. This is evident from the practice of fishermen, who can eat poisonous fish with impunity if they have taken the precaution to draw them carefully, and salt them. In addition to these observations, the symptoms of the disease thus produced, by no means resemble those of mineral poisons. Dr. Chisholm, who pretends that copper banks do exist in the Windward Islands, is of this opinion. Admitting the facts, it may be asked, have the waters of these seas been impregnated by the copper? if they are not, how can its influence extend to its inhabitants? and why are particular fish only affected? Moreover, although it is well known that certain substances are deleterious to some animals and harmless to others, yet one might fancy that, if the coppery principle of an animal's flesh could poison, it is not irrational to think that the same deadly substance would also destroy the animal. The presence of this mineral has never been detected by any chemical test; and, if the poison consisted in copper, how could salting the fish destroy it? In opposition to these objections, it has been maintained that fish may be rendered poisonous by feeding on the marine plants that grow upon these deadly banks. Now, unless it could be proved that copper is not injurious to fish, these same lithophyta and zoophyta would no doubt poison them.

However, it is more than probable that it is to a

certain injurious food that these dangerous qualities are to be referred. Various plants that grow in these regions are of a poisonous nature to man, although, as I have just observed, they may not be so destructive to fish. The circumstance of the alimentary tube being more poisonous than any other part seems to warrant the conclusion; and I have observed in the West Indies, that the crabs that feed upon banks where the manchineel is to be found, frequently occasion serious, and sometimes fatal accidents. On the coast of Malabar, crabs are poisonous in the month of October, when the *blue tithymale* abounds.

Whatever may be the causes of this deadly principle, the effects are most rapid. When a large quantity has been taken, the patient soon dies in strong convulsions; but frequently, when the quantity and the nature of the poison have not been sufficient to occasion death, the body becomes emaciated, the cuticle peels off, particularly on the palms of the hands and the soles of the feet, the hair drops, acute pains shoot through every joint, and the sufferer not unfrequently sinks under a lingering disease. In these cases change of climate has been found the most effectual remedy, and a return to Europe becomes indispensable.

The usual symptoms that denote the presence of the poison, are languor, heaviness, drowsiness, great restlessness, flushing of the face, nausea,

gripping, a burning sensation, at first experienced in the face and eyes, and then extending over the whole body ; the pulse, at first hard and frequent, soon sinks, and becomes slow and feeble. In some cases the salivary glands become tumefied with a profuse salivation ; and the body, and its perspiration, are as yellow as in the jaundice. These peculiar symptoms have frequently been known to arise after eating the *rock-fish*.

The remedies that are usually resorted to are stimulants. Capsicum has been considered a powerful antidote ; and the use of ardent spirits or cordials has also been strongly urged. It has been observed, that persons who had drunk freely, or who had taken a dram after eating fish that had disordered others, were, comparatively speaking, exempt from the severity of the disease. A decoction of the root of the *sour-sop*, and an infusion of the flowers of the *white cedar* and the *sensitive plant* have also been advised by several West Indian practitioners.

The practice of putting a silver spoon in the water in which fish is boiled, to ascertain its salubrity, is a popular test that cannot be depended on. Fishermen have observed that fish that have no scales are more apt to prove injurious ; and those of uncommon size are looked upon as the most dangerous.

To ascertain whether the nature of the fishes' food could thus render them poisonous, Mr. Mo-

reau de Jonnès had recourse to many curious experiments. He took portions of polypes found in the waters reputed dangerous, more particularly the *liriozoa Caribæa*, the *millepora polymorpha*, the *gorgonia pinnata*, the *actinia anemone*, &c. and, having enveloped them in paste, he fed fishes with them ; but in no one instance was any prejudicial result observed. He tried in the same manner the *physalis pelagica* of Lamark, which contains an acrid and caustic fluid ; but the fish invariably refused it, nor would they touch fragments of the manchineel apple.

Oysters have been known to produce various accidents ; and, when they were of a green colour, it has been supposed that this peculiarity was also due to copper banks. This is an absurdity ; the green tinge is as natural to some varieties as to the *esor belone*, whose bones are invariably of the same hue as verdigrise. Muscles frequently occasion feverish symptoms, attended with a red, and sometimes a copper-coloured, efflorescence over the whole body. These accidents appear to arise from some peculiar circumstances. In Boulogne I attended the family of Sir James Grant ; when all the children who had eaten muscles were labouring under this affection, while not another instance of it was observed in the place. In the Bahama Islands I witnessed a fatal case in a young girl who had eaten crabs ; she was the only sufferer, although every individual in the family

had shared in the meal. The idea of the testaceous mollusca avoiding copper-bottomed vessels, while they are found in abundance on those that are not sheathed, is absurd ; this circumstance can be easily explained by the greater facility these creatures find in adhering to wood. There is every reason to believe, that the supposed poisonous oysters found adhering to the coppered bottom of a ship in the Virgin Isles, and the occasional accidents amongst the men that ate them, were only so in the observer's imagination, and that part of the ship's company were affected by some other causes. Another report, equally absurd, was that of the fish having gradually quitted the Thames and Medway since coppering ships' bottoms has been introduced ! The following may be considered the fish that should be avoided :

The Spanish mackerel,	<i>Scomber cœruleo-argenteus.</i>
The yellow-billed sprat,	<i>Clupea thrissa.</i>
The baracuta,	<i>Esox baracuta.</i>
Grey snapper,	<i>Coracinus fuscus.</i>
The porgie,	<i>Sparus chrysops.</i>
The king-fish,	<i>Scomber maximus.</i>
The hyne,	<i>Coracinus minor.</i>
Bottle-nosed cavallo,	<i>Scomber.</i>
Old wife,	<i>Balistes monoceros.</i>
Conger-eel,	<i>Muræna major.</i>
Sword-fish,	<i>Xiphias gladius.</i>
Smooth bottle-fish,	<i>Ostracion globellum.</i>
Rock-fish,	<i>Perca marina.</i>

I have known accidents arise from the use

of the dolphin on the high seas ; and, while I was in the West Indies, a melancholy instance of the kind occurred, when the captain, mate, and three seamen of a trading vessel died from the poison ; a passenger, his wife, and a boy were the only survivors, and were fortunately picked up in the unmanageable vessel.

The above catalogue of poisonous fishes is extracted from Dr. Dancer's "Jamaica Practice of Physic," and its correctness fell under my own observation in the West Indies. The different systems and classifications of ichthyologists have produced much confusion, and may lead to fatal errors ; I think it therefore advisable to submit to travellers, who may have to visit these unhealthy regions, the names of the *toxicophorous* fishes according to the French nomenclature.

Le poisson armé,	<i>Diodon orbicularis</i> .
La lune,	<i>Tetraodon mola</i> .—LINN.
Le tétraodon ocellé,	<i>T. ocellatus</i> .
Le t. scélérat,	<i>T. sceleratus</i> .
La vieille,	<i>Balistes vetula</i> .
La petite vieille,	{ <i>B. monoceros</i> .—LINN.
Le coffre triangulaire,	{ <i>Alutus monoceros</i> .—CUVIER.
La grande orphie,	<i>Ostracion trigonus</i> .—BLOCH.
La petite orphie,	<i>Esox Brasiliensis</i> .—LINN.
Le congre,	<i>E. marginatus</i> .—LACÉPÈDE.
Le perroquet,	<i>Muraena conger</i> .—LINN.
Le capitaine,	<i>Sparus psittacus</i> .—LACÉPÈDE.
La bécune,	<i>S. erythrinus</i> .—BLOCH.
Le thon,	<i>Sphyræna becuna</i> .
La carangue.	<i>Scomber thynnus</i> .—LINN.
	<i>Caranx carangus</i> .

A work, in which a *synonymous* catalogue of all the fishes supposed to be poisonous might be found, would be highly desirable, as they mostly bear different popular and scientific names, thus producing a dangerous confusion even amongst naturalists; how much more dangerous amongst seafaring people and voyagers!

I cannot conclude this article without noticing the singular properties of those electric fishes denominated the *torpedo-ray* and the *gymnote*. They had been long known to naturalists, and the ancients attributed their destructive faculties to a magic power that Oppian has recorded in his *Alieuticon*, where he describes a fisherman palsied through the hook, the line, and the rod. This influence being voluntary on the part of the animal, seemed to warrant the belief in its mischievous nature, since sometimes it allows itself to be touched with impunity, while at others it burrows itself under the sand of the beach, when the tide has receded, and maliciously benumbs the astonished passenger who walks over it. Common in the Mediterranean Sea, this singular fish has been described both by the Greek and Roman writers; amongst others, Aristotle and Athenæus: and Socrates, in his Dialogues, compares a powerful objection to the influence of the torpedo.

This voluntary faculty has been observed by Lacépède and Cloquet in the Mediterranean, and at La Rochelle. In torpedos kept in water for

experimental purposes, Réaumur found that he handled them without experiencing any shock for some time, until they at last appeared to become impatient: he then experienced a stunning sensation along the arm, not easily described, but resembling that which is felt when a limb has been struck with a sudden blow. One of the experiments of this naturalist proved the extensive power of this faculty. He placed a torpedo and a duck in a vessel containing sea-water, covered with linen to prevent the duck from escaping, without impeding the bird's respiration. At the expiration of a few minutes the animal was found dead, killed by the electric shocks of its enemy.

Redi was the first who demonstrated this faculty. Having laid hold of a torpedo recently caught, he had scarcely touched it, when he felt a creeping sensation shooting up to the shoulder, followed by an unpleasant tremor, with a lancinating pain in the elbow. These sensations he experienced as often as he touched the animal; but this faculty gradually decreased in strength as the animal became exhausted and dying. These experiments he related in a work entitled "*Esperienze intorno à diverse cose naturali.*" Florence, 1671.

In 1774, Walsh made some very interesting experiments at the Isle of Ré and La Rochelle, and clearly demonstrated this electric faculty in a paper *On the electric property of the torpedo*. In one

of them he found that this fish could produce from forty to fifty shocks in the space of ninety minutes. The electrified individuals were isolated; and at each shock the animal gave, it appeared to labour under a sense of contraction, when his eyes sunk deep in their sockets.

The *trichiurus electricus* of Linnæus, the *rhinobatus electricus* of Schneider, and the *gymnonotus electricus* of Surinam, are the species of this singular fish with which experiments have chiefly been made. The *gymnonotus* is a kind of eel, five or six feet in length, and its electric properties are so powerful that it can throw down men and horses. This animal is rendered more terrific from the velocity of its powers of natation, thus being able to discharge its thunder far and near. When touched with one hand, the shock is slight; but when grasped with both, it is so violent that, according to the accounts of Collins Flag, the electric fluid can paralyse the arms of the imprudent experimentalist for several years. This electric action is analogous to that which is obtained by means of the fulminating plate, which is made of glass, with metallic plates. Twenty-seven persons holding each other by the hands, and forming a chain, the extremities of which corresponded with points of the fish's body, experienced a smart shock. These shocks are produced in quick succession, but become gradually weaker as the fluid appears to be exhausted. Humboldt informs us,

that, to catch this fish, wild horses are driven into the water, and after having expended the fury and the vigour of the gymnonotus, fishermen step in and catch them either in nets or with harpoons. Here we find that the irritable or sensorial power is exhausted through the medium of electricity. These phenomena may be attributed to an electric or Voltaic aura; and the organ of the animal that secretes the fluid resembles in its wonderful structure the Voltaic apparatus. Both the gymnote and the torpedo obey the laws of electricity, and their action is limited to the same conducting and non-conducting mediums. The electric sparks proceeding from the gymnote have been plainly seen in a dark chamber by Walsh, Pringle, Williamson, and others. The fish has four electric organs, two large and two small ones, extending on each side of the body from the abdomen to the end of the tail. These organs are of such a size that they constitute one third of the fish's bulk. Each of them is composed of a series of aponeurotic membranes, longitudinal, parallel, horizontal, and at about one line's distance from each other. Hunter counted thirty-four of these fasciculi in one of the largest. Other membranes or plates traverse these vertically, and nearly at a right angle; thus forming a plexus or net-work of numerous rhomboidal cells. Hunter found no less than two hundred and forty of these vertical plates in the space of eleven inches. This apparatus, analogous

to the Voltaic pile, is brought into action by a system of nerves rising from the spinal marrow, each vertebra giving out a branch ; other branches, rising from a large nerve, running from the basis of the cranium to the extremity of the tail. All these ramifications are spread and developed in the cells of the electric organs, to transmit its powerful fluid, and strike with stupor or with death every animal that comes within its reach. Lacépède has justly compared this wonderful mechanism to a battery formed of a multitude of folio-electric pieces.

The electric organ of the *malapterus electricus* is of a different formation. This fish, found in the Nile, and in other rivers of Africa, is called by the Arabs *raash*, or thunder. In this animal the electric fluid extends all round the body, immediately under the integuments, and consists of a tissue of cellular fibres so dense, that it might be compared to a layer of bacon ; but, when carefully examined, it consists of a series of fibres forming a complex net-work. These cells, like those in the gymnote, are lubricated with a mucous secretion. The nervous system of this intricate machinery is formed by the two long branches of the pneumo-gastric nerves, which in fishes usually run under each lateral line. Here, however, they approach each other on leaving the cranium, traversing the first vertebra.

Linnæus had classed the torpedo in the genus

ray, and hence called it *raia torpedo*. Later naturalists have restored to it its ancient name, as given by Pliny, and termed it *torpedo*, of which four species are described: the *T. narke*, or with five spots; the *T. unimaculata*, marked, as the name indicates, with one spot; the *T. marmorata*, and the *T. Galvanni*.

The ancients placed much faith in the medicinal properties of these fishes. Hippocrates recommends its roasted flesh in dropsies that follow liver affections. Dioscorides prescribed its application in cases of obstinate headaches and rheumatisms. Galen and other physicians recommend the application of the living animal; and Scribonius Largus states that the freedman Anteroes was cured of the gout by this practice. To this day, in Abyssinia, fever patients are tied down on a table, and a torpedo is applied to various parts of the body. This operation, it is affirmed, causes great pain, but is an infallible remedy.

MEMORY AND THE MENTAL FACULTIES.

THIS noble faculty, the proudest attribute of mankind, justly called the mother of the Muses, is subject to be impaired by various physical and moral causes, while a similar agency can sometimes restore it to its pristine energies, or develop its powers when sluggish and defective. Memory may be considered as the history of the past chronicled in our minds, to be consulted and called upon whenever circumstances or the strange complication of human interests demand its powerful aid. Its powers and nature widely differ, and these varieties depend upon education, natural capacities, mode of living, and pursuits. Thus memory has been divided into that faculty that applies to facts, and to that more superficial quality that embraces a recollection of things, to which must be added the memory of localities: "*Lucullus habuit divinam quamdam memoriam rerum, verborum majorem Hortensius,*" said Cicero.

It is on this division that Aristotle founded his belief that the brute creation had not the faculty of reminiscence, although he allowed them to pos-

sess memory. According to his doctrine, reminiscence is the power of recollecting an object by means of a syllogistic chain of thought; an intellectual link with which animals do not seem to be gifted. Their memory appears solely to consist of the impressions received by the return of circumstances of a similar kind. Thus, a horse that has started on a certain part of a road will be apt to evince the same apprehension when passing the same spot. This is an instinctive fear, but not the result of calculation or the combination of former ideas. Reminiscence is the revival of memory by reflection; in short, the recovery or recollection of lost impressions.

The remembrance of things or facts can alone bring forth a sound judgment. It implies a regular co-ordination of ideas, a catenation of reflections, in which circumstances are linked with each other. The chain broken, no conclusion can be drawn. Newton was wont to lose the thread of an important conversation when his mind was in search of an idea. This is the reason why the society of the learned is seldom entertaining to the generality of society. They are considered absent, while their brain is busily employed in pursuits perhaps of great magnitude, and must therefore be anything but agreeable to those who generally think through the medium of other persons' brains.

The brain is considered to be the seat of me-

mory. When it is injured, remembrance is impaired ; and, on the other hand, an accident has been known to improve the recollective faculties. A man remarkable for his bad memory fell from a considerable height upon his head ; ever after he could recollect the most trifling circumstance. The effects of different maladies will also produce various results on this faculty. In some instances names of persons and things are completely forgotten or misapplied ; at other times, words beginning with a vowel cannot be found. Sudden fright and cold have produced the same effects. An elderly man fell off his horse in crossing a ford in a winter's night ; ever after he could not bring to his recollection the names of his wife and children, although he did not cease to recognise and love them as fondly as before the accident. Cold has been at all times considered injurious to memory ; hence Paulus Æginus called Oblivion the child of Cold.

Philosophers have endeavoured to fix the seat of memory in various portions of the brain. The ancients fancied that it was lodged in the posterior part of the cranium ; having observed that, when persons endeavoured to recollect anything, they usually scratched the back part of the head. The Arabian physicians entertained a similar belief. Gratarola maintained that a great protuberance of the occiput indicated a good memory. Gall places it above the orbitary cavity of the eye, and even

behind it. It has long been thought that persons with protuberant eyes had quick recollections. The physical condition of the brain has also been considered as materially affecting memory. What physiologists have called a moist brain was looked upon as unfavourable to its developement; and it was therefore to the soft and pulpy condition of the cerebral organs in young children that the difficulty of impressing anything upon their minds arose; the same stupidity being observed in cases where water was supposed to be lodged in the brain. While this humid state was considered as injurious to memory, dryness of the organ was also esteemed an obstacle of a similar nature; and in old age it is by this state of siccidity that failure in memory was attempted to be explained. This failure of memory as age advances may, however, be explained in a much more rational manner. Old men will bear in lively recollection the events that attended their childhood, their youth, and manhood; it is only recent occurrences that shed a transient impression on their minds. The cause of this may be considered to arise from the extreme *impressionability* that prevails in early life, when every organ is prompt in responding to each call upon its powers; when the charms of novelty tinge with a brighter, yet a more lasting lustre, all our pleasurable sensations; when grief had not yet wrung the young heart till its fibres became callous to future pangs, when perfidy and ingrati-

tude have shown us that all is vanity, and calm philosophy has tutored our passions in Adversity's school. Reason now sits upon the judgment-seat, and all that we then can wonder at, is, that at any time we could have wondered at anything. Why, then, are we to seek for a material theory of the mind, when our daily experience shows us that it is under the influence of so many moral agents?

Amongst the many curious doctrines that have been started, to account for the operations of memory, some philosophers have compared it to the art of engraving; pretending that on those subjects where it requires much time and trouble to work an impression it was more durable, while it was only traced in a superficial manner on those brains that were ever ready and soft to receive this plastic influence. These several faculties they therefore compared to bronze or marble, to butter and to wax. Descartes, following up the phantasy, compared recollection to etching, and said that the animal spirits, being passed over the lines previously traced, brought them more powerfully to the mind; thus comparing the brain to the varnished copper-plate over which the engraver passes his aquafortis. Malebranche endeavoured to establish another doctrine, that compared our cerebral organ to an instrument formed of a series of fibres, so arranged, that when any recent emotion agitated one of these chords the others would immediately be thrown into vibration, renewing a past

chain of ideas. As these chords became less flexible in old age, of course these vibrations were more difficult to obtain. Recollection was also considered an attribute of each molecule of the brain; and Bonnet endeavoured to count how many hundred ideas each molecule was capable of holding during a long life.

The controversies of learned psychologists on the relation of memory and judgment, indeed on the analogies that exist between our several mental faculties, have been as various as they are likely to prove interminable. Without offending these illustrious controversialists, we may endeavour to enumerate these faculties, which, despite the ingenuity of theorists, appear in a practical point of view to exercise a wonderful influence upon each other. The first may be considered the faculty of *perception*, assisted by that of *attention*, to which we are indebted for our *ideas*. These are preserved and called into action from the rich stores of the mind by *memory*, justly called by Cicero the guardian of the other faculties. *Imagination* is the faculty of the mind that represents the images of remembered objects as if they were actually present. *Abstraction* forms general deductions from the foregoing faculties; while *judgment* compares and examines the analogies and relations of the ideas of sense and of abstract notions. Finally, *reason* draws inferences from the comparisons of judgment.

It is from the combination and the workings of these wonderful powers that *appetency*, *desires*, *aversions*, and *volition* arise. *Appetency* occasions *desires*, and these, when disappointed or satiated, inevitably usher in aversions and antipathies; although, as we shall see in another article, our antipathies are frequently instinctive, and not arising from any combination of the faculties I have enumerated.

Dr. Gall has considered these mental faculties as fundamental; and in this view he was certainly correct, since they may be considered the source whence all other distinct capacities arise. These distinct capacities are probably formed by particular habits of study and the nature of our pursuits, independently of those specific capacities which appear to be innate, and, according to the system of the phrenologists, organic. Every man possesses these fundamental faculties in a greater or a less degree, according to the obtuseness or the energies of his mind; but it is absurd to conceive that specific capacities can be brought into action without the agency of the fundamental ones. Let us take the instinct to destroy life, the sentiment of property, metaphysical sagacity, poetic talent,—in short, any one of Gall's various faculties; can we for one instant conceive that they are not under the influence of *perception*, *memory*, *imagination*, and *abstraction*, although they may not be properly ruled by *judgment* and by *reason*?

Instincts are equally under a similar influence, and are, according to circumstances, regulated by judgment in the various modes of life of animals. Phrenologists deny that instinct is a general faculty, and assert that it is an inherent disposition to activity possessed by every faculty, and that there are as many instincts as fundamental faculties. This is a postulation by no means clear. Instinct is an inherent disposition possessed by every animal, but not by every faculty. It is a disposition dependent upon the combination of all the mental faculties, according to the degree in which the animal may possess them : the reminiscences of animals prove it. We have instanced the horse, who, endowed with the memory of locality, starts when passing by the same spot where he had started before. But here the memory of facts, *memoria realis*, and probably of words, *memoria verbalis*, are superadded to the *memoria localis*. The horse recollects the tree, the carrion, the object that startled him, whatever it might have been ; but to this reminiscence are associated the chiding, the punishment he received from his rider. If this horse had possessed the faculties of *abstraction*, *judgment*, and *reason*, he would not have started, to avoid a reiteration of punishment ; but he started under the impression of *perception*, *attention*, and *memory*. Wherever there does not exist a combination of the faculties, the intellectual ones may be considered imperfect. We cer-

tainly may have a greater perception and memory of one subject than of others. Thus, a man with a musical organisation will recollect any tune he may have heard, though it may not have attracted the *attention* of one who "hath no music in his soul." We daily perceive different talents in children educated together. This is, no doubt, a strong corroboration of the doctrine of organic dispositions, which in reality no philosophic observer can deny; but to maintain that these several dispositions are not regulated by what have been called the fundamental faculties, is, I apprehend, a position that cannot well be maintained; and we may be warranted in the conclusion that a particular faculty may be the result of the combined action of several faculties, if not of all; for, whether a man be a poet or a painter, a miser or a spendthrift, an affectionate father or an assassin, every one of the mental faculties that I have enumerated will to a certain extent be brought into action, however morbid that action may be.

All these disquisitions of philosophers, however attractive they may be, when decked out with fancy's fascination, are the mere wanderings of physical speculation, that never can be proved or refuted until we attain a knowledge of the nature and quality of the perceptions which material objects produce in the mind through the medium of the external senses. But, while some of these speculations are idle and harmless, others

may be fraught with danger, and occasion much misery in society. Let us for one moment conceive the possibility of our resolves and actions being dictated by a supposed phrenological knowledge,—a knowledge earnestly recommended to statesmen, and indeed to mankind in general;—what would be the result? A diplomatic bungler would be sent on an embassy, because a minister, or a sovereign, with a phrenologic map before him, may fancy that he displays the faculty of circumspection, or the sense of things; and a chancellor of the exchequer be found in some needy adventurer who possessed the organ of relation of numbers!

I by no means presume to invalidate the statements of Dr. Gall. The profession is highly indebted to him for his accurate description of the brain; and physiology must ever consider him as one of the brightest ornaments of science: but I do maintain, that to recommend his conclusions as a guide to society would be the most rash of visionary speculations; and, to my personal knowledge, no man was ever more mistaken in his estimate of the persons whom he met in society than the learned doctor himself. Of this I had frequent opportunities of convincing myself, when I met him in Paris in the circle of a Russian family which he daily visited. If I could admit, with a late ingenious writer, “that phrenology teaches the true nature of man, and that its importance in

medicine, education, jurisprudence, and everything relating to society and conduct, must be at once apparent," I should certainly agree with him in recommending its study to parents, judges, and juries; but, for the present, I am apt to believe that, although it may prove a most interesting and valuable pursuit to the physiologist, it is by no means calculated to be the *vade mecum* of any liberal man.

The memory of various persons is amazing, and has been remarked in ancient times with much surprise. Cyrus knew the name of every soldier in his army. Mithridates, who had troops of twenty-two nations serving under his banners, became a proficient in the language of each country. Cyneas, sent on a mission to Rome by Pyrrhus, made himself acquainted in two days with the names of all the senators and the principal citizens. Appius Claudius and the Emperor Hadrian, according to Seneca, could recite two thousand words in the order they had heard them, and afterwards repeat them from the end to the beginning. Portius Latro could deliver all the speeches he had hastily written without any study.

Esdras is stated by historians to have restored the sacred Hebrew volumes by memory when they had been destroyed by the Chaldeans; and, according to Eusebius, it is to his sole recollection that we are indebted for that part of Holy Writ. St. Anthony, the Egyptian hermit, although he

could not read, knew the whole Scripture by heart; and St. Jerome mentions one Neopolien, an illiterate soldier, who, anxious to enter into monastic orders, learned to recite the works of all the fathers, and obtained the name of the Living Dictionary of Christianity; while St. Antoninus, the Florentine, at the age of sixteen, could repeat all the papal bulls, the decrees of councils, and the canons of the church, without missing a word. The Pope Clement V. owed his prodigious memory to a fall on his head. This accident at first had impaired this faculty; but by dint of application he endeavoured to recover its powers, and he succeeded so completely, that Petrarch informs us he never forgot anything that he had read. John Pic de la Mirandola, justly considered a prodigy, could maintain a thesis on any subject,—*de omni re scibili*,—when a mere child; and when verses were read to him, he could repeat them backward. Joseph Scaliger learned his Homer in twenty-one days, and all the Latin poets in four months. Haller mentions a German scholar, of the name of Muller, who could speak twenty languages correctly. Our own literary annals record many instances of this wonderful faculty.

To fortify this function when naturally weak, or to restore it to its pristine energies when enfeebled by any peculiar circumstances, has been long considered an essential study that has occupied both the philosopher and the physician. Re-

duced to an art, this pursuit has received the name of *Mnemonia* ; and at various periods professors of it, more or less distinguished by their success, have appeared in the several capitals of Europe.

It has been justly observed, that remembrance is to the past what our sensations are to the present, and our busy conjectures to futurity. Memory gives a lesson to mankind, by stripping past events of their *prestige* ; thus enabling us to view what passes around us with a more calm and philosophic resignation, while at the same time it tends to protect us, in the career lying before us, against the many contingencies that are likely to impede our path. Although it might appear desirable that we could bury in oblivion the painful scenes of our past life, yet the wisdom of the Creator has deemed this faculty as necessary to our happiness as our utter ignorance of our future destinies. For let us mistake not by a hasty glance on this most important subject ; the remembrance of past sufferings is not always painful ; far from it. There is that which is holy in our past sorrows, that tends to produce a calm, nay a pleasurable sensation of gratitude ; and St. Theresa beautifully expressed this hallowed feeling when she exclaimed, “ Where are those blissful days when I felt so unhappy !” *Et olim meminisse juvabit.*

Memory depends in a great measure on the

vivacity with which these past scenes are retraced—I may say re-transmitted to the mind, in ideal forms “as palpable” as those that may be present. Therefore reminiscence may be said to result from a connexion between ideas and images recalled into being by a regular succession of expressive signs that the brute creation do not possess. Those characteristic signs and images that are generally circumstantial are co-ordinated and classified in the mind, and tend materially in weak memories to produce an artificial mode of recollecting the past. This faculty is therefore matured by habit. A literary man, whose library is properly classed, will find the book he wants in the dark. The classification of his books is ever present to his mind. These circumstantial signs are always remembered by a sort of association in our ideas. Thus Descartes, who fondly loved a girl who squinted, was always affected with strabismus when speaking of her. When we first see a person in any particular costume, the individual is clad in the same apparel whenever brought to our minds, even after a lapse of many years, when fashion has banished even from general recollection the costume that memory thus retraces individually. From these observations it has been concluded that the most probable method of improving memory would be to regulate these associations by a proper classification. One link of this ideal chain will

naturally lead to another. Many military men, to recollect any number, will associate it with that of a regiment, so far at least as the number of regiments extend; and the recollection of this particular regiment will not only bring to his mind the number of the house he seeks, but various other circumstances connected both with the regiment and the number. For instance, I wish to recollect No. 87 in a certain street. I had, when the number was mentioned to me, attached it to the 87th regiment; and instantly I not only recollect that the 87th regiment are the Irish Fusileers, but that they took an eagle at Barossa, where they distinguished themselves, and that the figure of that eagle is borne upon all the appointments of the corps. At the same moment, with the rapidity of lightning's flash, I recollect all the circumstances of the battle of Barossa; the different conversations I may have had at various times with the officers of the 87th; the town, the camp, the bivouac where I last had met them. Thus are innumerable circumstances instantaneously converging in a mental focus while simply seeking for the lodgings of an individual. This may be called the memory of locality, since it is locality that revives its vivacity. The poet Simonides is said to have been the founder of the mnemonic art. Cicero informs us, that, supping out one night with a noble Thessalian, he was called out by two of his acquaintance, and while

in conversation with them the roof of the house fell in, and crushed to death all the guests he had left at table. When the bodies were sought for, they were so disfigured by the accident that they could not be recognised even by their nearest friends; but Simonides identified them all, by merely recollecting the seats they had held at the banquet.

Cicero and Quintilian adopted his system, connecting the ideas of a discourse with certain figures. The different parts of the hilt of a sword, for instance, might regulate the details of a battle; the different parts of a tree associate the relations of a journey. Other mnemonic teachers recommended the division of ideas to correspond with the distribution of a house; while some of them refreshed the memory by associations connected with the fingers and other parts of the hand. Cicero expresses himself plainly on this subject: "*Qui multa voluerit meminisse, multa sibi loca comparet; oportet multos comparare locos, ut in multis locis multas imagines collocemus.*"

Learning poetry by heart in infancy and youth is perhaps one of the best methods of improving memory, since it lays the early foundation of a classification of words and ideas. Virgil has justly said, "*Numeros memini, si verba tenerem.*" To abridge, resume, and analyse what we have read or heard, is another practice highly beneficial; for, the more clearly we comprehend a subject, the deeper will it remain engraved in our memory.

Reading what we wish to recollect before going to bed will materially assist the memory. We sleep over the impressions we have received, and dreams alone can weaken them. From this very reason we can write with more facility upon subjects that require much mental exertion in the morning, fasting, when the mind has not been disturbed by the events of the day, and when the functions of digestion have not drawn upon our faculties, too frequently with the lavishness of a spendthrift. It is somewhat singular, but, despite the interruption of dreams, our ideas mature during our sleep. Quintilian expresses himself as follows on this subject: “*Mirum dictu est quantum nox interposita adferat firmitatis, sive quiescit labor ille cujus sibi ipsa fatigatio obstabat, sive maturatur ac coquatur, seu firmissima ejus pars est recordatio. Quæ statim referri non poterant, contexuntur postero die, confirmatque memoriam idem illud tempus quod esse in causâ solet oblivionis.*”

Memory is subject to be variously disturbed in certain maladies. There is an affection called *amnesia*, in which it utterly fails, and another termed *dysmnnesia*, when it is defective. Failure of memory is generally more manifest on some subjects than on others. Salmuth relates the case of a man who had forgotten to pronounce words, although he could write them. Another person could only recollect the first syllables. An old man had for-

gotten all the past events of his life, unless recalled to his recollection by some occurrence; yet every night he regularly recollected some one particular circumstance of his early days. A curious anecdote is recorded of an elderly gentleman who had fallen into the meshes of an artful courtesan, and who frequently took his own wife for this insidious acquaintance, frequently saying to her, “Madam, I feel that I am doing wrong by devoting to you so much of my time, for, when a man has a wife and children, such conduct is unpardonable;” and, after this polite observation, he took up his hat, and would have walked off, had not his wife, wise enough not to manifest displeasure, contrived to undeceive him.

Dietrich mentions a patient who remembered facts, but had totally forgotten words; while another could write, although he had lost the faculty of reading. Old men are frequently met with who confound substantives, and will call their snuff-box a cane, or their watch a hat. In other cases letters are transposed, and a musician has called his *flute* a *tufle*. Some curious anagrams have been made by these irregularities. John Hunter was suddenly attacked with a loss of memory, which is thus related by Sir Everard Home: “He was at the time on a visit at the house of a friend. He did not know in what part of the house he was, nor even the name of the street when told it, nor where his own house was. He had not a concep-

tion of anything existing beyond the room he was in, and yet was perfectly conscious of the loss of memory. He was sensible of impressions of all kinds from the senses, and therefore looked out of the window, although rather dark, to see if he could be made sensible of the situation of the house. The loss of memory gradually went off, and in less than half an hour his memory was perfectly recovered." Such momentary accidents I have frequently observed in gouty patients; and for a second or two I have myself experienced the sensation, for the moment of a most alarming nature. Hunter was subject to arthritic attacks.

Corvinus Messala lost his memory for two years, and in his old age could not remember his own name. This is an occurrence by no means uncommon; and I knew a person in perfect health who could only recollect his name by writing it. We frequently see individuals who, although they are generally correct orthographers, cannot sometimes spell a simple conjunction. An anecdote is related in the *Psychological Magazine* of a German statesman, who having called at a gentleman's house, the servants of which not knowing him, was asked for his name, which he had, however, so totally forgotten, that he was under the necessity of turning round to a friend and saying with great earnestness, "Pray tell me who I am, for I cannot recollect."

Cases are recorded of the forgetfulness of a

language constantly spoken, while one nearly forgotten from want of practice was recovered. A patient in St. Thomas's Hospital, who had been admitted with a brain-fever, on his recovery spoke an unknown language to his attendants. A Welsh milkman happened to be in the ward, and recognised his native dialect; although the patient had left Wales in early youth, had resided thirty years in England, and had nearly forgotten his native tongue. Boerhaave relates a curious case of a Spanish poet, author of several excellent tragedies, who had so completely lost his memory in consequence of an acute fever, that he not only had forgotten the languages he had formerly cultivated, but even the alphabet, and was obliged to begin again to learn to read. His own former productions were shown to him, but he could not recognise them. Afterwards, however, he began once more to compose verses, which bore so striking a resemblance to his former writings, that he at length became convinced of his being the author of them.

Loss of memory has been observed as a frequent occurrence after the prevalence of pestilential diseases. Thucydides relates, that after the plague of Athens several of the inhabitants forgot their own names and those of their parents and friends. After the disastrous retreat of the French army in Russia, and the disease which swept away so many of their troops at Wilna, many of

the survivors had no recollection of country or of home. Injuries of the head appear to occasion different results. This circumstance was observed by the ancients. Valerius Maximus relates the case of an Athenian, who, being struck on the head with a stone, forgot all literary attainments, although he preserved the recollection of other matters. A man wounded with a sword in the eye completely forgot Greek and Latin, in which he had formerly been a proficient. A young man, having fallen off his horse and contused his head, lost his memory to such an extent, that he would repeat a question a hundred times over, although the very first interrogation had been answered. He had not the slightest recollection of his accident. Epileptic and paralytic attacks frequently usher in this melancholy result, which has also been often observed after child-birth.

A singular instance of forgetfulness is related of a lady who had been united to a man she loved, after much opposition on the part of her family, and who lost her memory after the birth of a child. She could not be made to recollect any circumstance that had occurred since her marriage ; nor could she recognise her husband or her infant, both of whom she maintained were utter strangers to her. At first she repulsed them with apparent horror, but was at last, by the entreaties of her family, induced to believe that she was a wife and a mother ; and although she yielded to their soli-

citations, yet for years she could not persuade herself that their assertions were correct, as she actually was convinced "against her will." In this instance disease not only destroyed memory, but affection.

The case of Dr. Broussonnet was remarkable. An accident he had met with in the Pyrenees brought on an apoplectic attack. When he recovered, he could neither write nor pronounce correctly any substantives or personal names either in French or Latin, while adjectives and epithets crowded in his mind. Thus, when speaking of a person, he would describe his appearance, his qualities, and, without pronouncing the word "coat," would name its colour. In his botanical pursuits he could point out the form and colour of plants, but had not the power of naming them. A Parisian merchant, after severe losses, experienced such a failure in recollection, that he was constantly guilty of the most absurd anachronisms;—would talk of the battles of Louis the Fourteenth with Alexander the Great, and describe Charles the Twelfth ascending triumphantly Mount Valerian; and one night, after witnessing the performance of Talma, could not be persuaded that he had not applauded Lekain.

Sudden fright has also obliterated this faculty. Artemidorus lost his memory from the terror inspired by treading on a crocodile. Bleeding has produced the same effects; while, on the other

hand, blood-letting has restored an absent man to perfect recollection. Various venenous substances have also been said to produce amnesia. History records several instances of the kind. The soldiers of Anthony, on their return from the Parthian war, were attacked with loss of memory after eating some poisonous plants on their march. Bamba, king of the Goths, was suddenly deprived of all recollection after taking a draught presented to him by Eringius. Plater and Baldinger attributed a similar accident to the use of hemlock and arsenic. Narcotics, no doubt, may produce similar effects, but they will be of a transient nature; I do not know that this injurious power has been detected in any other productions, as the cases related by writers are not supported by sufficient authority to be entitled to unqualified belief.

The cause of these affections will most probably ever be unknown. Equally futile have proved all the endeavours to ascertain in what part of the brain memory is seated, since we have found some physiologists lodging this wonderful faculty in the posterior, and others in the anterior portion of the cranium. I apprehend that we might torture the brute creation, from the elephant down to the lowest reptile, for centuries, without being able to ascertain this point; and even could we attain this information, *cui bono*? Would it protect this privileged quarter of the cerebral organ from the action of external agency, or restore it to its

healthy functions when diseased? The mode in which our mental faculties are developed is an impenetrable mystery ; and, instead of vainly endeavouring to raise the mystic veil to gratify our curiosity, or rather our vanity, let us endeavour to apply these functions to the use for which they were intended by the allwise Creator, and exert them for the purpose of increasing the prosperity, or at any rate in endeavouring to diminish the sum of sufferings of his creatures, whether they be our fellow-men or the divers races that are submitted to our capricious power.

AFFECTIONS OF THE SIGHT.

THE different terms applied to the various morbid affections of vision have been frequently misconceived, and consequently have occasioned much confusion in their application. Those vitiated conditions which are usually noticed may be classed as follows :

- I. Night sight.
- II. Day sight.
- III. Long sight.
- IV. Short sight.
- V. Skew sight.
- VI. False sight.

Night sight, specifically called *Lucifuga*, was also termed *Nyctalopia*, from νύξ, *night*, and ὤψ, *eye* ; it was also known as the *Noctem amans*. This affection was thus named in consequence of the person labouring under it being only able to see at night, or in a deep shade ; hence the first name : while *nyctalopia* has been used by most modern writers in the opposite sense of *night-sight ache*, agreeably, according to Mason Good's observations, to the technical or implied meaning of *opia*, in which case it always imports a diseased vision ; whence

nyctalopia has been made to import day sight, instead of night sight.

This disease appears to be dependent upon a peculiar irritability of the retina, produced by two different causes,—a sudden exposure to a stronger light than the eye has been accustomed to bear, or a deficiency of the black pigment which lines the choroid tunic. If the iris be weak and torpid, it is enlarged; if strong and contracted, diminished. Thus, those who from peculiar circumstances reside in dark caverns and subterraneous abodes, or who have long been confined in obscure dungeons, labour under the first of these causes; instances of which were observed in two of the captives liberated from the Bastille in 1789.

Ramazzini informs us that this affection is commonly observed among the Italian peasants, amongst whom he was not able to trace any other peculiarity than an enlargement of the pupil. This state of the vision, however, has been attributed to the peculiar brightness of the Italian sky, its clear atmosphere, and the relaxing warmth of the temperature. The Italian peasants are therefore constantly exposed to all those causes that tend to debilitate the iris, while they irritate the retina. We thus find these causes acting with renewed power at the season when the disease usually makes its attack,—the vernal equinox, when an increased flood of solar rays breaks on them. Such is the dimness that this brightness

produces, that the peasantry frequently lose their way in the fields in the glare of day ; but on the approach of night they can see distinctly. Hence are they obliged to remain for some weeks in the shade to recover their sight.

A deficiency of the black pigment of the eye is occasionally found in persons of a very fair complexion and light hair. This affection is therefore common in the Albinoes. This circumstance arises from the whiteness of the eyelashes and hair, whereby the retina is deprived of the natural shade that softens the light in its descent. This debilitated race generally inhabit warm and damp regions ; they are seldom long-lived, and frequently low-spirited and morose. The iris is of a pink colour, and this circumstance, added to the constant winking that the weakness of the organ occasions, gives them a distressing appearance. In horses, this want of the dark pigment constitutes what is called the *wall eye*.

Acuteness in night vision is natural to most, if not to all, animals that prowl in the dark. In the feline genus we observe that the iris can be contracted much closer than in mankind, when exposed to a vivid glare ; but they also expand to a much greater degree when obscurity sets in. Owls, bats, and many insects, possess a similar faculty.

Day sight, the nyctalopia of some authors, is said to be endemic in some countries,—Poland, the West Indies, Brazils, and various intertropical

regions. This affection arises from causes totally different from the former one. Here the eye is habitually exposed to too great a flood of light, whence the retina becomes torpid. It has been said to be endemic in some districts of France, particularly in the neighbourhood of Roche Guyon, on the banks of the Seine; but here the soil is of a dazzling white: and as it makes its attacks in the spring, and continues for three months, it is supposed to arise from the keenness of the reflected light, after the dreary winter months.

This disease has also been commonly observed in Russia, especially in the summer, when the eye is exposed, with scarcely any intermission, to the constant action of light, as the sun dips but little below the horizon, and there is scarcely any interval of darkness. Hens are subject to this affection, and cannot see to pick up their food in the dusk of the evening. The complaint is, from this circumstance, called *hen blindness*.

Dr. Heberden has communicated the following curious case of this species of affection: "A man about forty years old had in the spring a tertian fever, for which he took too small a quantity of bark, so that the returns of it were weakened without being removed. Three days after his last fit, being then employed on board a ship in the river, he observed at sun-setting that all objects began to look blue, which blueness gradually

thickened into a cloud ; and not long after he became so blind as hardly to perceive the light of a candle. The next morning about sun-rising his sight was restored as perfectly as ever. When the next night came on, he lost his sight again in the same manner, and this continued for twelve days and nights. He then came ashore, where the disorder of his eyes gradually abated, and in three days was entirely gone. A month after he went on board another ship, and after three days' stay in it the night blindness returned as before, and lasted all the time of his remaining in the ship, which was nine nights. He then left the ship, and his blindness did not return while he was upon land. Some little time afterwards he went into another ship, in which he continued for ten days, during which time the blindness returned only two nights, and never afterwards." It appears, however, that this individual had previously laboured under an affection produced by the use of lead, which had left him in a state of much nervous debility. Notwithstanding this circumstance, this case clearly proves that the affection is liable to be increased and brought on by local influence.

Long sight. In this species of vision the iris is habitually dilated, and not easily stimulated into contraction. Several varieties of this affection have been observed. Dr. Wells, in the *Philosophical Transactions*, relates the case of a young

person who, from a permanent dilatation of the pupil, saw near objects with much difficulty and confusion, but remote bodies with singular accuracy. The power of moving the upper lid was completely lost. This dilatation of the pupil, which may be artificially produced by the application of belladonna, can be remedied by the use of convex glasses.

Short sight. In this case the iris is contracted, and the cornea, which in long sight is too much flattened, is too convex or polarised; therefore spectacles of an opposite character, and with concave glasses, become necessary. Mice are said to be short-sighted; hence the affection has been termed myopia or myopiasis, literally “mouse-sight.”

Skew sight, or sight askew, is a condition of our vision only accurate when the object is placed obliquely, in consequence of some partial obfuscation of the cornea, frequently from slight scars, scarcely, if at all, observable. In this lateral vision the axis of the eye affected usually coincides with that of the sound eye. In squinting, on the contrary, the two axes do not coincide.

In *false sight*, imaginary objects float before the sight; or, at other times, objects assume imaginary forms and qualities. The latter species has been divided in cases where the objects that are supposed to be seen, have no real existence, and in cases where actual objects have assumed qualities

that do not appertain to them. The first are termed ocular phantasms or spectres; the latter, ocular transmutations or illusions. These spectres sometimes form dark spots, called by physicians *muscæ volitantes*. In another species, a net-work seems to be spread before the eyes; hence called *visus reticularis*. In a third form sparks scintillate, and this appearance is experienced when the eye has been struck. The eye is also troubled with an imaginary sense of dazzling, constituting the *myrmaryge* of the Greek writers; at other times, an iridescent appearance, exhibiting the colours of the rainbow, is experienced, although sometimes this impression is confined to a single colour. Dr. Heberden relates the case of a lady of advanced age, lodging on the eastern coast of Kent, in a house that looked immediately upon the sea, and exposed to the glare of the morning sun. The curtains of her room were white, a circumstance which added to the intensity of the light. When she had been there about ten days, she observed one evening, at the time of sunset, that first the fringes of the clouds appeared red, and soon after the same colour was diffused over all the objects around her, especially if they were white. This lasted the whole night, but in the morning her sight was again perfect. This alternation of morbid and sound sight prevailed the whole time the lady resided on the coast, which was three weeks; and for nearly as long after she

left it, at which time it ceased suddenly of its own accord.

There exists another variety of false sight, that Plenck has denominated *metamorphopsia*, and in which objects appear changed in their natural qualities, producing error of form, error of motion, error of number, and error of colour. I had a patient in Lisbon who fancied that all the horses he saw carried horns or extensive antlers. A young lady whom I attended beheld every one of a gigantic height. Dr. Priestley has given a curious case of error of colour in five brothers and two sisters, all adults. One of the brothers could form no idea whatever of colours, though he judged very accurately of the form and other qualities of objects; hence he thought stockings were sufficiently distinguished by the name of stockings, and could not conceive the necessity of calling them white or black. He could perceive cherries on a tree; but only distinguished them, even when red-ripe, from the surrounding leaves by their size and shape. One of the brothers appeared to have a faint sense of a few colours, but still a very imperfect notion; and, upon the whole, they did not seem to possess any other distinguishing power than that of light and shade, into which they resolved all the colours presented to them, — so that dove or straw colour were regarded as white; and green, crimson, and purple, as black or dark. On looking at a rain-

bow, one of them could distinguish that it consisted of stripes, but nothing more. Dr. Nicholl relates the case of a boy who confounded green with red ; and called light red and pink, blue. His maternal grandfather and one uncle had the same imperfection. The latter was in the navy, and having a blue coat and waistcoat, purchased a pair of red breeches to match. The same physician knew a gentleman who could not distinguish green from red ; a cucumber and a boiled lobster did not offer the least difference in colour. His brother and his niece laboured under a similar affection.

Some philosophers are of opinion, that in the power of conceiving colours there is a striking difference in individuals, and are inclined to think that in many instances the supposed defects of sight ought to be ascribed to a defect in the power of conception, arising probably from some early habit of inattention. This theory is scarcely tenable. The utmost inattention and indifference regarding surrounding objects could never lead to a delusive view of any colour ; moreover, it is more than probable that, in the case of a child in whom such a defective vision was observed, his attention would be incessantly called on by those around him, to correct, if possible, so strange a delusion. Moreover, this defect of vision, as we have seen, appears in some instances to be hereditary ; and to prevail in families.

Phrenologists of course are of opinion that the judgment of colours resides in a particular organ, remarkably full and prominent in painters distinguished by the perfection of their colouring. According to Gall, a local deficiency of brain is observable where the power of distinguishing colours is deficient.

The sense of vision exhibits more variety in the different classes of animals than any of the others. In man, and the greater number of quadrupeds, this organ is guarded by an upper and a lower lid, both of which in man are fringed with lashes. This is not the case in most quadrupeds. In the elephant, opossum, seal, cats, other mammalia, birds, and all fishes, we find a third eye-lid, or nictitating membrane, as it is called, arising from the internal angle of the eye, capable of covering and protecting the eye from danger, either wholly or in part. In the dog this membrane is narrow; in oxen and horses it extends half over the eye-ball. It is by means of this veil that eagles are capable of fixing their eyes on the noon-day sun. The largest eyes in proportion to the size of the animal are found in birds,—nearly the smallest in whales; but the most diminutive are those of the shrew and mole, the latter's not exceeding the size of a pin's head.

The situation of the organs of vision differs materially. In man and monkeys they are placed directly under the forehead; in some fishes, such

as the turbot and flounder tribes, both eyes are placed in the same side of the head. In the snail they are situated on the horns ; and in the spider, distributed over various points of the body, and in different arrangements.

Eyes, however, are not indispensable to become sensible of the presence of light. Several zoophytes, that do not possess the organs of vision, are perfectly alive to its influence. A distinct organ is not always indispensable for a distinct sense. It is probable that in those animals that appear to be endowed with particular senses, without displaying particular organs relating to them, the senses are diffused, like that of touch, over the whole surface. This subject has been admirably commented on by Cuvier.

HELLEBORE.

FROM time immemorial this substance has been considered an efficacious remedy in mania. The Greeks pretended that the daughters of Proetus, smitten with insanity by Bacchus, were restored to reason by the shepherd Melampus, who gave them some milk drawn from goats that had eaten hellebore. It is supposed that the use of purgatives arose from this fabulous tradition, whence this plant was called *melampodium*.

The ancients described two varieties, the white and the black. The first, according to Theophrastus, was found on a part of Mount Œta called Pyra, on which the body of Hercules was burnt. It is not certain whether they confounded our hellebore with our veratrum. Pinel supposes that the veratrum album was their hellebore, as it is not probable that the veratrum nigrum should have been thus confounded. Tournefort, in his travels in the Levant, fancied that he had discovered the root of the ancients in one that the Turks called *zopteme*, which answered in its character to the description recorded in older writers.

Howbeit, it was considered a powerful purga-

tive and emetic, especially indicated in the treatment of mental affections. Celsus forbade its exhibition in summer and during the winter, or whenever febrile symptoms were prevalent. This precaution, however, applied to all purgative medicines; and to this day, in several parts of the Continent, similar injunctions are usual; and even in France practitioners of the old school prepare a patient several days before any opening medicine is given,—a learned precaution, that has but too frequently rendered every medicine useless.

The exhibition of this drug was a matter of so much importance amongst the ancients, that it was specifically termed *helleborism*; and it was considered of so powerful a nature in mania, that the treatment of the malady was called *navigare Anticyras*, since it was near the town of Anticyras that the plant was generally gathered. If this process of helleborism proved efficacious, it is more than probable that its beneficial results proceeded from the violent evacuations that preceded it. The following was the mode adopted with the helleborised: The patient was first well fed for several days until the decline of the moon, when a powerful emetic was given to him; five days after, a similar dose was prescribed, and then good living ordered for a month: at the expiration of this invigorating respite, emetics began again to work him every three days. After the last attack on his digestive head-quarters, he was bathed,

fed again, and hellebore was given after he had been submitted to several hours' friction with olive oil. The emetics were invariably administered on a full stomach, which was cleared either by medicine or the excitement of the beard of a quill poked down the unfortunate patient's throat. At other times, (by way, no doubt, of variety,) rejection was excited by making the patient eat a pound or more of horse-radish ; after which he was walked about for some time ; and then, after a short repose the fingers or the quill were brought into action. After this operation he was lulled to sleep by a regular shampooing. It appears that, despite all these practices, the stomachs of the ancients were sometimes so pertinaciously retentive, that more powerful means to *relieve* them were adopted ; and when the longest feather that could be plucked from a goose proved unavailing, gloves dipped in the oil of cypress were put on, and the fingers thus inuncted replaced the feathers. When this failed, the obstinate sufferer was made to swallow a quart or two of honey and hot water, in which rue had been infused ; and when this proved ineffectual, he was slung in a hammock to produce the sensation of sea-sickness. In some cases it appears that, despite this practice, the patient thought proper to faint. On such occasions little wedges of wood were driven between his obstinate and rebellious teeth clenched against medicine, so as to allow the introduction of the

goose-quill, while cephalic snuff of the precious hellebore and euphorbia was blown up his nostrils to produce sneezing. The last trial to relieve him was tossing the ill-fated wight in a blanket. After this experiment the patient was left to nature or to his friends, if he would not recover. These friends immediately proceeded to give him punches in the stomach, roll him about the floor, and endeavour to restore him to his senses by driving him out of them by every possible noises that could frighten him, if his *frightful* condition was at all susceptible of anything left in the arsenal of medicinal ingenuity.*

Small doses of hellebore seem to have been taken not only with impunity, but were supposed to assist the mental faculties. According to Valerius Maximus and Aulus Gellius, orators were in the practice of using this stimulus before their disputations. Such, it is said, was the habit of Carneades, whose doctrines might well have been applied to this very day to many theories, since he denied that anything in the world could be perceived or understood.

Hellebore is to this day an ingredient in many of the fashionable pills vended by successful

* That serious accidents might have resulted from the use of hellebore is most likely, since various plants resembling it have been mistaken for it; chiefly the *adonis vernalis*, *trollius Europæus*, *actæa spicata*, *astrantia major*, *veratrum album*, and the *aconitum neomontanum*, the last of which is a most virulent poison.

quacks. This introduction, at any rate, shows that their compounders have candour enough to think (although they may not acknowledge it) that the intellectual faculties of the purchasers of their nostrums do stand in need of some medicinal aid.

SYMPATHIES AND ANTIPATHIES.

THE constant effects produced by causes which do not appear connected with them, are phenomena both of organic and inorganic nature which have long fixed the attention of philosophers, and have not yet been satisfactorily explained. This operation between distant bodies cannot be traced to any medium of communication. It arises from an attractive and a repulsive power that cannot be defined. Almost every substance evinces inclinations or antipathies ; is attracted with more or less strength by one body, indifferent towards a second, and constantly avoiding a third ; nay, bodies appear to act where they are not present, and where no communication can exist. We are as ignorant of the nature of these phenomena as of those of gravitation, magnetism, and electricity. Still, although this medium of communication is not evident, it must be admitted by inference that there must exist a connecting channel, although its nature be unknown.

The ancients called sympathy *consensus*, and the moderns have also defined it a *consent of parts* ; nor is this definition incorrect, since sympathy

arises from the relative ties that mysteriously unite our several organs, however distant and unconnected they may appear ; thus establishing a beauteous harmony between all the functions of the animal economy. Sympathies must therefore constitute the chief study of the physiologist : on this alone can the physician ground his investigation of the various disorders to which flesh is heir. Symptoms arise from sympathies : without a knowledge of the one we can never attain a clear insight in the other.

Sympathies are of a physical or a moral nature. The first consist, as I have already stated, of a consent between the different parts of the organism ; the latter of certain impressions, unaccountable, unconquerable, that harmonise in a multiplicity of phenomena various individuals, or that induce them, without their being able to assign any reason or motive to warrant the repugnance, to avoid each other, and not unfrequently to entertain a feeling of disgust or horror. A secret voice has spoken,—organism instinctively obeys. Moral sympathies have been defined as faculties that enable us to partake of the ideas, the affections, or the dislikes of others ; although this sentiment is by no means reciprocal, and we often dislike those who fondly love us. So far sympathy is instinctive ; yet, like many instincts, it is more or less under the control of our reason. We often acquire an artificial partiality to sub-

stances that we naturally disliked. Our senses may be considered the instruments of our sympathies ; yet our senses are regulated by education and habit. Oil, olives, tobacco, and various other substances, are naturally, one might say instinctively, unpleasant to most individuals ; yet by custom they are not only relished, but ardently wished for when they cannot be obtained. It is the same with our relative partiality or aversion towards individuals ; and indifference is often turned into affection, while the most ardent love is not far remote from hate, when vanity more especially removes its boundaries.

If we admit that our sympathies are lodged in certain specific organs, we must consider that we are the slaves of organism ; whereas it is pretty positive that to a certain extent we are the slaves of habit. Even the most ardent and prevailing passions, the indulgence in which has become an absolute necessity, cease to be brought into action when they have long remained dormant. To associate our moral sympathies with physical consents of parts is to level man with the brute creation ; although we hourly see the most decided instinctive dislikes in animals overcome by education. A mouse may be brought up with a cat, and a hawk with a sparrow ; although a chicken has been known to dart at a fly the moment its head was out of the egg.

Nor can we view in the same light the affini-

ties of inorganic bodies. They are subject to chemical laws; each is endowed with specific qualities that seldom or never vary, and some other body must be interposed to check their attraction; and that body, in the relation of inorganic matter, may be compared to the influence of the mind in intellectual beings. In animals, the very laws of nature are not unfrequently unheeded; and in these instances natural instincts appear less powerful than the mechanical discrimination that we witness in vegetable life, where germs, and molecules, and fibrils not only select each other, according to nature's harmonic institutions, but actually attract each other from distant situations. This attractive power is beautifully illustrated in the mysterious vegetation of the *vallisneria spiralis*, an aquatic plant, in which the male and female are distinct individuals. The organisation of the male qualifies it to adapt itself to the surface of the water, from the bottom of which the plant shoots forth, and to float in the middle of the deep and rapid tide. The female, on the contrary, is only found in shallow waters, or on shores where the tide exerts but little influence. Thus differently formed and situated, how does their union take place? It is a wonderful mystery. As soon as the male flower is perfect, the spiral stem dries away, and the flower thus separated sails away towards the shore in pursuit of the female, for the most part driven by a cur-

rent of wind or the stream ; yet as soon as it arrives near its destination it obeys a new influence, and is attracted towards the object of its pursuit, despite the powers of that wind and tide which until then directed it. No hypothesis, however ingenious, can explain this phenomenon.

Notwithstanding the doctrines of various writers, I am of opinion that our passions are clearly instinctive, but fortunately more or less under the control of our mental faculties in well-regulated individuals, who do not yield to these instinctive feelings an unbridled course ; and I doubt much if there does exist a single passion, however inordinate it may appear, that cannot be mastered. Both good and evil qualities are frequently artificial, and arise from peculiar moral and physical conditions. Self-preservation is an instinctive feeling ; yet man will wantonly risk his existence from false views regarding his social position. Courage has been considered as differing in its quality, (if I may use the term,) and arises sometimes from a natural animal or brute propensity, at others from calculation and reflection ; and the latter most unquestionably may temper the former. Duclos' distinction between what is called the courageous heart and the courageous mind is by no means as objectionable as some of his opponents maintain. If courage is an instinctive faculty, residing in a certain organ, who comes it that this organism varies at different periods ?

How comes it, moreover, that this variety depends upon circumstances? I have seen a desperate duellist disgrace himself by a cowardly flight in the field of battle. I have known an arrant poltroon defend himself desperately against robbers; and a man, considered of undoubted courage, surrender his arms to a single footpad. In our instincts, our sympathies, we are to a certain extent the children of circumstances; and it would be as absurd to maintain that we cannot control our moral sympathies, as to excuse the commission of murder or of theft.

Our physical sympathies are of a nature totally different. Here they are brought into action according to certain laws of the organisation, as uncontrollable as chemical affinities; and I doubt much whether our unaccountable antipathies may not be considered as appertaining to this category: they seem to depend upon certain laws of attraction and repulsion. The channel of this communication, as I have already observed, will perhaps remain for ever in utter obscurity. To this day we know not in what manner certain articles of food and medicinal substances find a path to the kidneys with such a rapidity as to render it improbable that it was through the medium of the circulation. The nature of other physiological phenomena is equally unexplained. Through what channel of communication does the cat-hater know that one of these animals is in the room,

although unseen by him? Yet these antipathies might be conquered. A man was wont to fall into fits at the sight of a spider; a waxen one was made, which equally terrified him. When he had recovered his faculties, his error was pointed out, the wax figure was put into his hand without inspiring dread, and shortly the living insect no longer disturbed him.

Certain antipathies appear to depend upon a peculiarity of the senses. The horror inspired by the odour of certain flowers may be referred to this cause. Amatus Lusitanus relates the case of a monk who fainted when he beheld a rose, and never quitted his cell when that flower was blooming. Scaliger mentions one of his relations who experienced a similar horror when seeing a lily. In these instances it is not the agreeableness or the offensive nature of the aroma that inspires the repugnance; and Montaigne remarked on this subject, that there were men who dreaded an apple more than a musket-ball. Zimmerman tells us of a lady who could not endure the feeling of silk and satin, and shuddered when touching the velvety skin of a peach. Boyle records the case of a man who felt a natural abhorrence to honey. Without his knowledge, some honey was introduced in a plaister applied to his foot, and the accidents that resulted compelled his attendants to withdraw it. A young man was known to faint whenever he heard the servant sweeping. Hip-

pocrates mentions one Nicanor who swooned whenever he heard a flute : our Shakspeare has alluded to the effects of the bagpipe. Julia, daughter of Frederick, king of Naples, could not taste meat without serious accidents. Boyle fainted when he heard the splashing of water ; Scaliger turned pale at the sight of water-cresses ; Erasmus experienced febrile symptoms when smelling fish ; the Duke d'Epernon swooned on beholding a leveret, although a hare did not produce the same effect. Tycobrahie fainted at the sight of a fox, Henry the Third of France at that of a cat, and Marshal d'Albert at a pig. The horror that whole families entertain of cheese is generally known. Many individuals cannot digest, or even retain, certain substances, such as rice, wine, various fruits, and vegetables.

There are also antipathies that border upon mental aberration. Such was the case with a clergyman who fainted whenever a certain verse in Jeremiah was read. I lately dined in company with a gentleman who was seized with symptoms of syncope whenever a surgical operation or an accident was spoken of. St. John Long's name happened to be mentioned, and he was carried out of the room. I have also known a person who experienced an alarming vertigo and dizziness whenever a great height or a dizzy precipice was described. A similar accident has been occasioned by Edgar's description of Dover Cliff in King

Lear. All these sympathies may be looked upon as morbid affections, or rather peculiar idiosyncrasies, beyond the control of our reason or our volition, although it is not impossible that they might be gradually checked by habit. Our dislikes to individuals are often as unaccountable, when we are obliged to confess with the poet Martial :

Non amo te, Sabidi, nec possum dicere quare ;
Hoc tantùm possum dicere, Non amo te.

It is the same with our affections. The ancients, amongst others Empedocles, fancied that attraction and repulsion constituted the principal actions of life, and harmonised the universe. Hesiod dispels Chaos through the agency of Love. Aversions were attributed to the influence of an evil eye. To avoid its direful effects, strange practices were adopted, according to Tibullus ; and to check the malefices of wicked crones, it was customary to spit three times in an infant's bosom,

Despuit in molles et sibi quisque sinus ;

while the well-known amulet, representing the god Fascinus, was suspended round the child's neck. Maidens were veiled to guard them against this noxious power, and secrecy and retirement were deemed the most effectual means of security,

Latendum est dum vivimus, ut feliciter vivamus.

In a preceding article I have given a sketch of the custom of administering love-philters.

The singular sympathies that forewarn a future union between the sexes have in some instances been most surprising. The following example, that came within my knowledge, is perhaps one of the most singular: Mr. ——, a brother officer of mine, was a man of taciturn and retired habits, seldom frequented public places of amusement, and, when there, felt anything but gratification. One evening after dinner he was, however, prevailed upon to go to a ball. We had not been long in the room when, to my utter surprise, he expressed great admiration of a young lady who was dancing, and, what still more amazed us all, he engaged her to dance. Such an act of apparent levity on his part struck us as a singularity which might have been attributed to an unusual indulgence at table, had not the contrary been the case, for he was remarkably abstemious. The dance was scarcely over when he came to me, and told me with a look of deep despondency, that his lovely partner was a married woman. The tone of sadness in which he addressed me was truly ludicrous. A few minutes after, he left the ball-room. The strangeness of his conduct led me to fear that his mind was not altogether in a sound state; but I was confirmed in my apprehension when he told me the following morning that he was convinced he should be married to the object of his admiration, whose husband was a young and healthy clergyman in the neighbour-

hood. Here matters rested, and we both went abroad. We did not meet until three years after, when, to my utter surprise, I found that his prediction had been verified. The lady's husband had died from a fall from his horse, and the parties were married. But what rendered this circumstance still more strange is, that a similar presentiment was experienced by the young lady, who, on returning from the ball, mentioned to her sister with much emotion, that she had danced with a stranger, to whom she felt convinced that she was destined to be married. This conviction embittered every moment of her life, as, despite her most strenuous endeavours, she could not dismiss the stranger from her constant thoughts, reluctantly yielding to the hope of seeing him again.

The sympathetic power of fascination is another unaccountable phenomenon. It is well known that in regions infested with venomous snakes, there are persons endowed both by nature and by art with the power of disarming the reptile of his poisonous capacities. The ancient Cyrenaica was overrun with poisonous serpents, and the *Psylli* were a tribe gifted with this faculty. When Cato pursued Juba over the Cyrenaic desert, he took some of these *Psylli* with him to cure the poisoned wounds that these reptiles might have inflicted on his soldiers. Bruce informs us that all the blacks in the kingdom of Sennaar are perfectly armed by nature against the bite of either

scorpion or viper. They take the cerastes, or horned serpent, (one of the most venomous of all the viper tribe,) in their hands at all times, put them in their bosoms, and throw them to one another, as children do apples or balls; during which sport the serpents are seldom irritated to bite, and, when they do bite, no mischief ensues from the wound. It is said that this power is derived from the practice of chewing certain plants in their infancy. This is most probably the fact; these substances may impregnate the body with some quality obnoxious to the reptile. The same traveller has given an account of several of these roots. In South America a similar practice prevails, and a curious memoir on the subject was drawn out by Don Pedro d'Orbies y Vargas, detailing various experiments. He informs us that the plant thus employed is the *vejuco de guaco*, hence denominated from its having been observed that the bird of that name, also called the serpent-hawk, usually sucked the juice of this plant before his attacks upon poisonous serpents. Prepared by drinking a small portion of this juice, inoculating themselves with it by rubbing it upon punctures in the skin, Don Pedro himself, and all his domestics, were accustomed to venture into the fields, and fearlessly seize the most venomous of these serpents. Acrell, in the *Amœnitates Academicæ*, informs us that the *senega* possesses a similar power. The *tantalus* or

ibis of Egypt, that derives its chief food from venomous animals, depends in a like manner on the protection of antidotes. This power of fascinating serpents is so great, that they remain totally torpid and inactive under its influence, and are not even able to offer any resistance when skinned from tail to head like an eel, and eaten alive. According to Bruce, they sicken the moment they are laid hold of, and are as exhausted by this invincible power as though they had been struck by lightning or an electric battery,—shutting their eyes the moment they are seized, and never attempting to turn their mouth towards the person that holds them.

Dr. Mead and Smith Barton of Philadelphia endeavour to explain this power by the influence of terror. This supposition, however, is not correct, since the serpent will injure one man and not another, if the latter is gifted with this faculty and the former one is not. Major Gordon of South Carolina attributes the fascinating power of reptiles to a vapour which they exhale and shed around them ; and he mentions a negro who, from a peculiar acuteness of smell, could discover a rattlesnake at two hundred feet distance. That certain odours are overpowering there is not the least doubt ; and trout and other fresh-water fishes are charmed and caught without resistance when the hand is smeared with asafoetida, marjoram, and other aromas. The fishes, delighted no doubt

with this odour, or intoxicated by its power, will actually flock towards the fingers, and allow themselves to be laid hold of.

Thieves and housebreakers have been known to possess the power of quieting watch-dogs, and keeping them silent during their depredations. Lindecrantz informs us that the Laplanders can instantly disarm the most furious dog, and oblige it to fly from them with every expression of terror. The strange faculty of taming the most unmanageable horses, possessed by an Irishman, hence called the *Whisperer*, is well known. Several horse-breakers have appeared at various periods possessing the same art, and they would make the wildest horse follow them as tamely as a dog, and lie down at their bidding. It has been affirmed that these whisperers introduce a globule of quicksilver, or some other substance, into the animal's ears. It is, however, more probable that these charmers derive their power of fascination from some natural or artificial emanation. The most singular power of fascination is perhaps that exhibited by the jugglers of Egypt, who, by merely pressing the serpent called *haje* on the neck, stiffen the reptile to such a degree, that they can wave it like a wand.

To explain this sympathetic influence that living beings exercise on each other, as I have already observed, has long been the study of philosophers. Their chief theories may be divided into

those of the advocates of *pneumatism* or *spiritualism*, who maintained that the nerves transmitted a subtile fluid susceptible of external transmission. Such were the disciples of Plato; and, amongst the moderns, the Arabian writers, Paracelsus, Van Helmont, Willis, Digby, Wirdig, and even Boerhaave. The *mechanicians* formed another class, refusing to admit the doctrine of influences, and submitting all sympathetic phenomena to the laws of mechanism and chemistry. Amongst these we find the Cartesians, Boyle, Hoffmann, and Haller. Their doctrine had already been established amongst the ancients by Asclepiades. The third system was that of the *organicians*, who attributed these effects to our organisation, governed by a principle of free agency. In this school are recorded the names of Hippocrates, Galen, Stahl, Bordeu, and many illustrious writers of various ages. An investigation of these discrepancies would be foreign to these sketches. I can only observe, that none of them are tenable, and have only tended to display scholastic learning and ingenuity, without any practical beneficial results. Indeed, the only advantages that might possibly accrue from these pursuits would be the shedding of some faint light upon our systems of early education, by finding out the most judicious method of counteracting innate dispositions and peculiar idiosyncrasies.

The life of man is a relative and external exist-

ence. He lives in communion with all around him, and before his ultimate dissolution he is doomed to die with every object of his affections that perishes before him. To these objects he has been united by the secret powers of sympathy. The organism of both appears to have been subject to mutual laws; and grief and joy, our pains and pleasures, are transmitted with the rapidity and power of the magnetic fluid. Nor time nor distance can affect these sympathies, which have been known to remain latent in our breasts till called into action by accidental circumstances. Thus, a man has never known how fondly he loved until he was suddenly deprived of the object of his sympathies, although until that moment this affection had been unknown even to himself. This circumstance clearly proves that these sympathies are not under the influence of our imagination. Sympathies might be denominated a moral contagion in mankind: in the brute creation they merely produce a physical impulse. Reid attributed to the nervous system an atmosphere of sensibility, influencing all that came within its range. Ernest Platner maintained that our soul could diffuse itself in mutual transmission; and in another paper I have shown that life may be prolonged by sacrificing the health of others, when the genial warmth of youth is surreptitiously communicated to decrepitude. What is then this invisible vital fluid, this electric prin-

ciple, that the touch, the breath, the warmth, the very aroma of those we are fond of, communicates, when trembling, fluttering, breathless, we approach them? that enables us, even when surrounded with darkness, to recognise by the feel the hand of her we love? Nay, whence arises the feeling of respect and veneration that we experience in the presence of the great and the pre-eminently good? It may be said this arises from our education; we have been taught to consider these individuals as belonging to a superior class of mortals. To a certain extent this may be true; yet there does exist an impressive contagion when we are brought into the presence, or placed under the guidance, of such truly privileged persons. Their courage, their eloquence, their energies, their fanaticism, thrill every fibre, like the vibration of the chord under the skilful harpist's hand. Actuated by this mystic influence the coward has boldly rushed into the battle, the timid dared imminent perils, and the humane been driven to deeds of blood. Fanatic contagion has produced both martyrs and heroes. Example stimulates and emulates, despite our reasoning faculties. *Regis ad exemplar totus componitur orbis.* Imitation is the principle of action, the nursery of good and great deeds. We either feel degraded by the ascendancy of others, when we fancy, however vainly, that we may attain their level; or devote ourselves to their cause and their service, when we tacitly

recognise their mastery. It is more particularly in our devotion and in our love,—two sentiments more analogous than is generally believed,—that this *mutuality* of sympathies prevails; and when Galigai was asked by his judges by what means he had obtained his influence over Mary of Medicis, his reply was similar to that of the Moor when describing his course of love,—the witchcraft he had used to win his Desdemona, when with a greedy ear devouring his discourse.

There is no doubt that education, circumstances, our state of health, predispose us more or less to the action of these sympathetic powers, for then our feelings are actually more or less morbid. Affliction, for instance, predisposes to tender sentiments. There is perhaps much psychological matter of fact in the old story of the Ephesian widow; and our immortal Shakspeare felt the truth not only of the contagion of grief, but of its consoling power when reciprocally felt, although no doubt the reciprocity has often been assumed to woo and win.

Grief best is pleased with grief's society.

True sorrow then is feelingly surprised,

When with like feeling it is sympathised.

Fortunately for our frail race, sympathies are liable to be worn out by their own exhausting powers. Attrition polishes, but indurates at the same time: thus does social intercourse harden our gentle predispositions. The mathematical

world dispels the illusions of our fervent youth, as chilling truth changes fancy's flattering dreams. Experience is to man what rust is to iron ; it corrodes, but at the same time protects the metal from the magnet's mighty power.

Although the nature of sympathies most probably will never be ascertained, their study is essential both to the moralist and the physician, and both may be materially aided in their vocations by the temperament of the pupil or the patient ; for, as I shall endeavour to show in a subsequent sketch, our temperaments generally indicate individual characteristics. It is in vain that some philosophers may deny the power of innate faculties and dispositions. The very expression 'HUMAN NATURE' implies their existence. To encourage their growth, or to check their development, becomes the duty of those who are entrusted with the education of youth, when yielding to or counteracting propensities becomes as necessary as the care the horticulturist devotes to his trees. By the inclination that trees have taken, we can generally learn the prevalent winds of a district. The plastic hand of our early teachers may, in most instances, obtain a similar result ; though in the vegetable kingdom, as well as in the animal kingdom, there will be constantly found stubborn trunks that will resist all influence. Were we to admit that our material organism cannot be counteracted, we should inevitably fall into many

lamentable errors, and many a crime would be extenuated on the plea of fatalism. It is to be feared that some of our ingenious theorists have too frequently tortured organism on a Procrustean couch, to suit their favourite phantasies. We might reply to the visions of these enthusiasts in the words of Iago, "Our bodies are our gardens, to the which our wills are gardeners,—either to have it sterile with idleness, or manured with industry. The power and corrigible authority of this lies in our wills. If the balance of our lives had not one scale of reason to poise another of sensuality, the blood and baseness of our natures would conduct us to the most preposterous conclusions."

THE ARCHEUS OF VAN HELMONT.

ONE of the most ingenious fictions of those speculators who have endeavoured to explain the mysteries of our wonderful organisation, was perhaps the Archeus of Van Helmont, a term derived from *αρχη*, *origin, principle, authority, power*. According to the doctrines of this physician, this archeus was an internal agent that commanded and regulated all the vital functions. I cannot better describe it than by borrowing the language of the founder of the doctrine.

“The archeus and matter are the natural causes of all. The molecules of matter, essentially inert, receive from this principle their movements, their order, their distribution, their conformation: the archeus is the internal agent that penetrates them, the nucleus of their inspiration; it is the mould in which they are elaborated, brought into form by this plastic influence meeting in this material substance the requisite docility to realise its ideas of perfection. Thus the archeus is an active and an intelligent power, possessing the faculty of amalgamating and identifying itself with matter; penetrating its inmost recesses, it modifies and

changes each particle of matter, producing that incomprehensible series of oscillations of spontaneousness and equilibrium, that catenation and marvellous automatism, that constitute the consciousness of our existence, and whence springs the only notion we can form of its causation. It is the archeus that presides over our sense of smelling, of tasting, and consequently the selection of our food ; it is *he* that dissolves it in our digestive organs, liquefies it, and prepares it for due assimilation ; it is *he* that imparts a conservative action to the blood, and converts this vital fluid into bone and muscle. Should any particle of our aliments have escaped from this transforming power, these substances become foreign bodies, irritating by their presence this sovereign power, calling forth his energies and his activity, and exciting his indignation and wrath by their repeated provocations. His just fury stimulates and accelerates the vital functions ; but, instead of wreaking its vengeance on external matter, it overwhelms all internal obstacles, whether diffused in the system or concentrated on any given point. It is this tumultuous confusion that constitutes maladies, which arise from two evident causes,—an alteration in matter and a reaction of the archeus.

“Of these two morbid elements, the first is susceptible of a thousand varieties both in nature and extent, and therefore produces as many modifica-

tions in the corrective power. Then does the archeus, threatened on different points in different manners, regulate his plans and operations both of defence and of attack, selecting his weapons according to the nature of his antagonists. In this mutual struggle our archeus wisely checks the impetuosity of his onset, husband his forces, and merely detaches them from the main body according to the circumstances of the conflict ; thus ever keeping a powerful reserve. It is this wisdom of conduct that ultimately restores tranquillity, and compels the rebellious molecules to submit to the laws of organisation. For what constitutes the cure of a disease, whether obtained by nature or by art ? Nothing more than the dignified repose of the mighty archeus, when the fire of his wrath has consumed his foes. Diseases, therefore, are simply the execution of vast and complex projects that inspire the archeus, and which he carries into execution as the statuary embodies on the marble the conceptions of his genius. When the morbid idea is in conformity with his plans, a favourable result will ensue ; if, on the contrary, the archeus labours under a misconception, if he is thrown by erroneous impressions into disordinate steps, then may this power, excited without a just motive, or a determinate and proper object, turn its arms against itself, and destroy the ties that united it to matter. It is then that art, whose aim is to meet the foe with its own weapons, must have

recourse to medicine for the purpose of rousing the torpor of the archeus, re-animate his energies if he droops, overthrow him if he becomes unruly, and finally compel him to yield, by a salutary terror; forcibly bringing him back to that judicious equilibrium in action, when all the functions contribute in harmony and concert to the general welfare of the system."

Such were the truly poetical ideas of Van Helmont, who might have written an epic on the government, revolutions, and battles, in the archean state, similar to the Holy War of our ingenious Bunyan; for, like the cobbler poet, our theorist divided and subdivided his legions and their officers. The archeus is merely the sovereign commander, whose head-quarters and throne were in the stomach; all the other viscera have distinct commandants, receiving their orders from their chief, who employed the nerves as his *aides-de-camp*. Nor was it an easy matter to keep all these captains in a proper state of discipline. Their irregularities occasioned constant tumults; for although the court of the archeus, like all other courts, was most depraved and capricious in its practices, and intriguing in all its machinations, the archeus had great trouble in keeping his subordinates in a proper state, and the most rebellious of his generals was the one who commanded the uterine district. There it was in vain that the articles of war were constantly

read,—that solitary confinement and prison-diet were resorted to. Its constant mutinies not only demanded the utmost vigilance, but it was no easy matter to prevent its dangerous principles from contaminating the other branches of the service; and treasonable correspondences were not unfrequently discovered with the staff of the brain. This rebellious province, indeed, excited incessant apprehension, constantly agitated the entire commonwealth, and, on the plea of national welfare and liberty, it hoisted at times a standard of defiance, and precipitated the country in all the miseries of civil war; the more to be dreaded, as it always put forth the most specious pleas, destroying with words of peace.

This whimsical doctrine is not unlike the Platonian theories, and resembles the *naturism* or *ενογενεον* of Hippocrates, and the autocracy of the soul, of Stahl. Van Helmont not only established his archei in animals, but in plants, and even in our food. The archeus of man he sometimes called *ens seminale*, *ens spirituale*, *impetum faciens*, *aura vitalis*. Well aware that the most powerful despot cannot reign without rival powers, Van Helmont admitted certain *imperia in imperio*: for instance, there was a troublesome minister in his own cabinet, whom the archeus frequently could not control,—one *pylorus rector*, or master of the ceremonies; then he had to apprehend the power of a secret faculty possessed by the stomach and spleen,

which he called a *duumvirate*,—*jus duumvirat'*. The sensitive and immortal soul was another check on his sway ; while the spirit of life residing in the blood was not easily managed. All these vexations occasioned frequent attacks of illness in the monarch, and Van Helmont has described these several affections ; for, although he possessed the power of conceiving and executing plans of disease, like many physicians, he did not know how to cure himself.

When we consider that systems similar to this absurd doctrine, if not more extravagant, have ruled the medical schools for centuries with a despotic sway, can we marvel that medicine should have incurred the invectives of scepticism, or the scurrility of wits? In the very ratio of their absurdity have these flitting systems been maintained with scholastic fury ; their proselytes would have vied in excesses with monastic persecutors, had they been able to assume a religious mask. It is painful to observe that unbelief and impious ridicule in theologic matters may be referred to the same causes as medical scepticism,—the vain and presumptuous endeavour of man to explain that which the Creator has most probably willed to remain inexplicable. Instead of wisely referring all that is mysterious to the Almighty Power that knows no limit, man has sought to explain and comment upon human principles, nay upon human motives ; and when they could no

longer attribute evil to God, they crossed the *pons asinorum* to call in the Devil. In like manner, when they proudly fancied that they had regulated all the functions of the animal economy in that harmonious manner that they were modest enough to call admirable and wondrous, they endeavoured to account for a derangement of this equilibrious condition, either by the introduction of some evil spirit, or the unmanageable rebellion of some organ, some principle, some agency ; and for this purpose they gave individuality and specific vitality to these agents, each of the *dramatis personæ* having a particular part to perform in bringing on a tragic catastrophe or a happy *denouement* of the drama of life.

Let not the learned doctors of modern schools exclaim, that these were the errors of former days and of dark ages. They themselves are groveling and groping in the dark whenever they pretend to fly from the trammels of empiricism, and, like our forefathers, account for what is unaccountable. But, above all, let them be meek and modest (if they can) in passing judgment upon others, and inscribe upon the doors of their splendid libraries the saying of the olden sage, "All that we know is our own ignorance."

MONSTERS.

PHILOSOPHERS have puzzled their brains to no purpose in endeavouring to account for the unnatural formation of animals. The ancients, amongst whom we may name Democritus and Epicurus, attributing all organisation to an atomic aggregation, fancied that matter was endowed with an elective faculty and certain volition in attaining this organism; and considered monstruosities as mere experiments on the part of these atoms to produce some other species or races. This chimera was of a par with the archeus and his satellites of the preceding article. There is no doubt, however, that in the myriads of organised creatures various circumstances may tend to affect most materially the regularity of these developements, in the same manner as the properties and peculiar qualities of their organs may depend in a great measure upon similar influences. Conservation and reproduction are in the ratio of this perfection and imperfection. It is true, generally speaking, that the healthy and the best organised are less liable to engender an ill-conformed offspring; yet parents of this description have been known to

produce monsters. The *fortes creantur fortibus* of Horace has become a proverbial expression ; and some fanciful wanderers in the mazes of imagination framed rules for their *megalanthropogenesy*, or the art of creating illustrious men and distinguished women by uniting the learned and the witty.

Generation is a wondrous mystery. Many casual circumstances may check the mechanism of its action, (if I may be allowed the expression,) and affect its results. Any sudden physical or moral impression acting violently might produce this result ; although, despite the theories and experiments of philosophers, it has not been proved that conception depends in the slightest degree upon the passions, being an act of nature totally independent of the control of mental emotions or bodily sufferings. This fact is clearly proved in cases of brutal violence.

The ideas entertained by several naturalists, that organised beings were cast in a certain mould, were not altogether visionary, or unfounded on observation. The great resemblance between children, and the hereditary mal-conformation and defectuosities in whole families, would seem to a certain degree to warrant this conclusion ; but it is more probable that imagination may have some influence in this irregularity, although at the time we may be unconscious of the relative action of moral agency on physical functions. The sup-

porters of the existence of this plastic mould in which organised matter is cast, would then maintain that the mind having once influenced the conformation of the matrix, it would ever after preserve this deviation from nature's general laws.

It is evident that different species of animals and vegetables have disappeared on the face of the earth, some within the memory of man. We neither know how these species have ceased to exist, nor whether all that possibly can be created has hitherto been brought into being ; neither can we form any idea regarding the perpetuity of the races that surround us. Perpetuity and eternity are conventional terms : races were supposed to be perpetuated by the successive evolutions of germs, as I have observed in a former article. To a certain extent this doctrine is correct, and is rendered evident in the evolutions of plants arising from their seed. Preternatural conditions are merely irregularities in this germination. The doctrine, that at each creation a true generation and gradual formation of a new conception from the formless genital matter takes place, does not appear to me reconcileable with sound physiology, nor supported by observation ; for, were this the case, it is more than probable that preternatural formations would be more frequent. It was upon this doctrine that the learned Blumenbach founded his *nisus formativus*, an expression that he thus explains : “ The word *nisus* I have adopted chiefly

to express an energy truly vital, and therefore to distinguish it as clearly as possible from powers merely mechanical, by which some physiologists formerly endeavoured to explain generation. The point upon which the whole of this doctrine respecting the *nisus formativus* turns, and which is alone sufficient to distinguish it from the *vis plastica* of the ancients, or the *vis essentialis* of Wolff, and similar hypotheses, is *the union and intimate co-exertion of two distinct principles in the evolution of the nature of organised bodies,—of the PHYSICO-MECHANICAL with the purely TELEOLOGICAL ;—principles which have hitherto been adopted, but separately, by physiologists in framing theories of generation.*”

The ingenuity of this hypothesis must be admitted, but it does not militate against the pre-existence of germs. Germs are visible in the ovum before fecundation : in these germs the very primordia of future organisation can be distinguished. It is by no means necessary to allow these germs an exciting power, or a formative power, as has been objected : they are more or less profuse, and under the influence, as I have already said, of accidental circumstances. It has been maintained that monsters are more common in domesticated animals than in wild ones. This is by no means evident, since we have little opportunity of ascertaining the fact in forests and in wildernesses ; but, admitting the fact, it only tends to corroborate my opinion regarding the influence

of accidental causes in physical developement, since domestication must expose animals to many emotions unknown in their natural condition. It has been said that monsters are especially observed among sows. There perhaps is no animal under the subjection of man, excepting, perhaps, the unfortunate donkey, more exposed to physical injuries during gestation ; and as the Portuguese maintain that a *cajado* (a stick) springs from the earth whenever an ass is born, so our bumpkins and malicious urchins fancy that every one owes a kick to a gravid sow. Howbeit, I doubt much whether the swinish multitude are more subject to bear monstrosities than other animals ; and preternatural conformations are, I believe, as frequent in lambs, and calves, and chickens ; and double-headed and double-legged specimens of these animals are more frequently exhibited than monstrous pigs.

Monstrosities are of two kinds, and exhibit either an excess of parts or a defect. Thus, some children are born with more limbs than usual, whilst others are deprived of their natural proportions. It is not unlikely that in the former case twins were being developed ; whereas, in the other, the proper nourishment of the parts that are either wanting or stunted in their growth had somehow or other been impeded in its assimilation. This opinion seems to be warranted by the facts observed in the artificial incubation

of eggs, the different parts of the chick being more or less perfect where the heat had been more or less steadily applied; the produce of those eggs that had enjoyed more warmth being invariably the stronger. The same remark applies to plants. Eggs and seeds are in most respects ruled by similar laws in the phenomena of their germination: the arms and legs grow from the animal foetus, as the branches originate from the trunk of the tree. These ramifications are frequently as symmetrical as human limbs. When there are preternatural excesses in formation, it is probable that twins were intended: thus we see foetuses with double heads, or with two bodies. The same irregularity is observed in double and triple cherries, and other fruits. It is probable that this union took place when these bodies were in a soft state, and the vessels inosculated in their intricate ramifications with greater facility, until farther developement had consolidated the junction.

If a proof were wanting that monstrosities do not arise in the original organisation of the embryo, but from subsequent accidents during gestation, it might be sought in those preternatural appearances that arise from frights or longings, and constitute what are called *nævi materni*. Thus are infants born bearing the marks of some fruit the mother had desired, or some animal that had terrified her. This phenomenon plainly shows

that there does exist a wonderful sympathy between external objects and the uterine system; yet this sympathy is not as surprising as that which is subsequently observed between these marks and the fruits they represent. It is a well-authenticated fact that they will assume a tinge of maturity when the fruit is ripening, and become gradually more pale as it is going out of season. The same observation has been made in regard to animal marks; for instance, these marks have displayed a deeper colour when the mouse or the rat that had occasioned them was mentioned. I knew a lady who, during her pregnancy, was struck with the unpleasant view of leeches applied to a relative's foot. Her child was born with the mark of a leech coiled up in the act of suction on the identical spot. Mr. Bennett has published a remarkable instance of this uterine sympathy. A woman gave birth to a child with a large cluster of globular tumours growing from the tongue, and preventing the closure of the mouth, in colour, shape, and size exactly resembling our common grapes; and with a red excrescence from the chest, as exactly resembling in figure and appearance a turkey's wattles. On being questioned before the child was shown her, she answered that, while pregnant, she had seen some grapes, longed intensely for them, and constantly thought of them; and that she was also

once attacked and much alarmed by a turkey-cock.

Various writers have positively denied these facts. Gerard tells us that he had known three pregnant women whose minds had been constantly occupied with the unpleasant recollections of a cripple, of a dancing-dog fantastically dressed, and a basket of beautiful peaches ; yet their offspring bore no marks of these objects. This is no argument. No rational person could imagine for a single moment that every impression thus received is to be transmitted. Buffon, who also doubts this influence, thus expresses himself : “ We must not expect that we shall be able to convince women that the marks their children may bear have no analogy with ungratified longings. I have frequently asked them, before the birth of their infants, what had been their wishes, and consequently what would be the marks that they might expect ? By this question I frequently gave unintentional offence.”

Now, with all due respect to this celebrated naturalist, this argument is by no means conclusive. We perfectly well know that pregnant women are frequently alarmed without such consequences, and the most fantastic phantasies may cross their idle brains without any such result. It has been observed on this subject, “ that when a circumstance may proceed from many causes, we do not universally reject any one because it is fre-

quently alleged without reason." We have too many well-authenticated cases before us to doubt this strange effect of maternal impressions, so clearly observed and recorded in Holy Writ in the following passage of Genesis: "And Jacob took him rods of green poplar, and of the hazel and chestnut tree, and pilled white strakes in them, and made the white appear which was in the rods. And he set the rods which he had pilled before the flocks in the gutters in the watering-troughs, when the flocks came to drink, that they should conceive when they came to drink. And the flocks conceived before the rods, and brought forth cattle ringstraked, speckled, and spotted."

The sympathy that evidently exists between bodies separated from each other, but previously connected, has given rise to many absurd stories. It is told of Taliocotius, that having made a nose for a patient, cut out of a pig, the poor man's snout fell off the moment the hog was slaughtered. A similar belief prevails among horticulturists, who assert that the graft perishes when the parent tree decays. A very singular phenomenon is observed in some countries, where the wine in wood enters into a state of slight effervescence, and even efflorescence, when the vines begin to throw out their blossoms.

It therefore appears to me more than probable that monstrosities are by no means original mal-

conformations, but arise, during gestation, from physical or moral influences that affect the mother, however unconscious she may be of their action. The above observations may support this hypothesis in a moral point of view ; and we have frequent instances of violence occasioning preternatural developements. Mr. Giron Buzareingues mentions that a violent blow was given to a gravid bitch, who produced eight pups, all of which, excepting one, had the hind-legs wanting, malformed, or weak.

A farther disquisition would lead me beyond the limits of a sketch. I shall therefore relate some curious cases of monstrosities, that would seem to set at nought our ideas regarding the *indispensability* of certain organs to the functions of life.

Various instances are recorded of the union of two or more foetuses. We have lately seen the Siamese twins, and such a preternatural formation is by no means uncommon. In the Journal de Verdun, 1709, a case is related of two twin female children who were united at the loins, with only one intestinal canal. They were seven years old, could walk about, embrace each other in the fondest manner, and both were proficient in several languages. Buffon gives the history of two Hungarian girls, who were also joined together in the lumbar region. Helena, who was the first-born, became tall and straight ; Judith, her sister,

was of a diminutive size, and slightly arched. At six years of age she was attacked with hemiplegia, and never recovered perfect health. Helena was sprightly and intelligent. With the exception of the small-pox and measles, under which they laboured at the same time, their ailments were always distinct. They lived until the age of twenty-two, when Judith was attacked with a fever, that shortly terminated her existence. The horror expressed by Helena in beholding her dead companion, with whom she had been identified in sisterly love for so many years, cannot be described; but her agonies were of short duration, for in three minutes she also had ceased to live. On their *post mortem* examination each was found to have possessed distinct viscera. The aorta and vena cava were united above the origin of the iliac arteries; so that no operation could have been performed without destroying them both.

Duverney relates the case of twins united at the lower part of the abdomen. They only lived six days; the strongest of the two died first, and was followed by his companion three hours after. Haller records upwards of thirty cases of a similar nature; and various skeletons of this description are to be seen in our museums. Munster saw two girls united by the forehead. They had then attained their tenth year, when one of them died. It therefore became indispensable to separate them, but the unfortunate creature did not survive the

operation. Daubenton describes two children united at the back of the head.

Such miserable junctions naturally suggested the idea of effecting a separation by surgical means; but I believe this operation was only once performed with a successful result. Two little girls were united from the xiphoid cartilage to the umbilicus. The uniting substance was an inch in thickness, six lines in breadth, and five inches in circumference. In the centre of the junction was the umbilical ring common to both. The umbilical vessels were separated and tied; the ligature fell at the expiration of nine days; and then Zwingler, the operator, proceeded to divide the remaining bonds.

Various monsters have been seen with four arms and three legs, or four legs and two or three arms. The history of the double-headed infant of Oxford is curious. This creature had two heads diametrically opposite, four arms, one body, and two lower extremities. These heads were doubly baptised; one by the name of Martha, and the other Mary. The features were different; Mary's was smiling, Martha's dejected. The latter died two days after her birth, and Mary expired a quarter of an hour after.

A curious monster of a similar description is recorded to have lived at the court of James IV. of Scotland. It had been taught several languages, and music. One head was intelligent, the other

remarkably stupid. This creature lived twenty-eight years, when one of the individuals died. The other survived several days, but gradually drooped as the body of his late companion was decomposing. In olden writers we have many curious cases. How far they may be entitled to credit I cannot say ; although we have no reason to deny the fact, when we daily witness the most singular malconformations. Liceti relates the case of a child with two legs, but seven heads and seven arms. Bartholinus mentions one with three heads, each of which uttered the most horrible cries, and then expired.

While these unfortunates were visited with several heads, instances have been known of heads that had attained a most enormous volume. In Tunis, there was a Moor of thirty years of age, whose head was so large, that crowds followed him in the streets ; and his mouth was of such a capacity, that he could devour a large melon as easily as an apple. This man was an idiot. At Lucca, Benvenuti saw a lad, otherwise well-proportioned, whose head at the age of seven began to increase so rapidly, that when he was twenty-seven it measured thirty-seven inches eight lines in circumference, and his face was fifteen inches long.

Singular monstrosities have been seen, where heads and bodies seemed actually to be growing from or hanging to individuals. Winslow knew an Italian child, of eight years of age, who carried

a little head under the third left rib, and peeping out as if the body of the one had been concealed in that of the other. Both heads had been christened; the one James, the other Matthew. When the ear of little Matthew was pinched, his host James forthwith began to roar. The Bengal child, whose case is related by Valentin and Horne, is equally singular. Here one head was placed above the other, the superior one nearly as well conformed as the lower: both adhered intimately. The upper face assumed somewhat of an oblique direction. Each head had its distinct brain: sometimes one head was fast asleep while his neighbour was wide awake, and one head would cry most piteously if you pulled the hair of the other; but, what was still more singular, when the one was fed, its companion expressed its gratification, and water flowed from its mouth. This monster lived four years, and probably would have lived much longer, but for the bite of a venomous reptile.

In a former paper I alluded to encephalous and anencephalous cases, where there were either no heads or heads without brains. Of the first variety Bécclard relates the following: A woman at Angers was delivered of twins, one of which not only was without a head, but only showed the inferior part of the body; without arms, a small stump-like excrescence growing from the upper part of the chest; the feet were turned inwards, and without toes. The creature was of the male

sex. The body presented one cavity without any diaphragm ; nor could any trace of liver, spleen, oesophagus, or stomach be detected : the intestinal tube commenced at the upper part of the body, but was impervious ; the pancreas and kidneys were as usual ; the umbilical vein arose from the cava, and the umbilical arteries from the hypogastrics. There were ten ribs on each side, and the spinal marrow threw out its regular nerves.

Brunel has recorded the case of a male infant born without brains. The frontal bone was thrown back, and flattened on the sphenoid in such a manner that the eyes appeared above his head. The parietal and the squamous portion of the temporal were wanting, although the organ of hearing was well conformed. Not a vestige of brain could be discovered ; yet the carotid and vertebral arteries crossed the basis of the cranium. The spinal marrow arose from the fourth cervical vertebra. The organs of sight were perfect. Saviard describes an infant in which all the bones of the cranium were wanting, and, instead of a brain, the skin merely covered a cyst, containing a red pulpy substance resembling brain, whence arose several nerves.

It is, no doubt, to these malconformations that we are to attribute the various stories of children with heads of monkeys, goats, pigs, &c. or of that child whose face represented the devil, and who was described as “ *Cacodæmonis picturæ quàm*

humanæ figuræ similis," &c. The idle tales of Cyclopes are also to be sought in such accidental preternatural appearances, and several instances are recorded of children born with a single eye in the forehead. It would be useless to dwell longer on this painful subject. Those who wish for more information may gratify their curiosity by consulting the works of Haller, Soemmering, and other writers, who have treated this matter *ex professo*.

In conclusion, it appears to me that monstrosities are purely accidental, subject to no laws of nature, but deviations from them. We leave to theologasters the question of their being visitations of divine wrath. The only theories that can admit of discussion are the following: 1st, The imagination of the mother; 2nd, Accidental causes; and 3rd, An original monstrous germ. Maternal marks arising from longings and terror, as I have already observed, seemed to warrant the first conclusion; yet it is not tenable. What has imagination to do with the vegetable kingdom, which also presents monstrous conformations? Are we to attribute the same power of imagination to the brute creation? and, although we may fully admit the sympathy that exists between the uterine system and external objects, yet we cannot refer headless and double and triple embryos to this influence. The last hypothesis is also fraught with objections. We have every reason to believe

that all germs or seeds are perfect in themselves. Were there monstrous germs, there would ensue monstrous races. That germs may be accidentally vitiated and impaired, there can be no doubt ; but such an adventitious occurrence does not constitute an original monstruosity. Duverney and Winslow maintained that, in the case of a double monster, the monstruosity arose in the primitive germ. Lemery and other physiologists, on the contrary, insisted that double foetuses arise, as I have already stated, from a junction or fusion between two separate bodies, or, in short, the union of twins or triple conceptions, &c. Anatomical investigations confirmed this opinion, since in double-headed foetuses two distinct sets of organs are generally found.

This subject has occupied the most ingenious philosophers for centuries ; and the result of their experiments and debates seems to warrant the probability of these melancholy deviations from nature, foolishly denominated *lusi naturæ*, being purely accidental. The experiments of Jacobi seem to confirm this opinion, since he was able to produce preternatural fecundation in the eggs of fishes.

This investigation may appear idle ; yet, in a physiological point of view, it is fraught with interest as regarding the generation of animals and plants. Its study affords a lively illustration of those laws of attraction and repulsion that regu-

late the universe, and which seem to admit that every particle of matter should be endowed with a specific vitality, a specific individuality. This attraction is daily seen in the fecundation of the spawn of fish. Myriads of these eggs are accumulated in ponds and rivers ; yet in this mass the fecundating principle solely selects and impregnates those that naturally claim its vivifying powers. Wonderful harmony, that man alone endeavours to destroy !—harmony so perfect, that Aristoxenus and Alcmaëon maintained that it was an emanation of the diapason of celestial music between the planets, our globe, and our five senses, forming a diatonic series of seven tones ; while Hippocrates justly denominated these organic laws the CONFLUXUS UNUS, CONSPIRATIO UNICA, CONSENTIENTIA OMNIA.

LONGEVITY.

THE greater the complexity of a piece of machinery, and the more labour it is called upon to perform, the more rapid will be its wear and tear. This applies to human life as well as to mechanism. The derangement of its component parts—its springs and wheels, will also be in the ratio of their complication. Thus do we find that the brute creation are less subject to those affections that abridge their days than mankind. Their life is natural, except when under the sway of domestication : ours is artificial ; and high civilisation tends to render it still more unnatural than it would most probably have been in a simple and patriarchal existence. Endowed with more acuteness of sensibility than animals, we are rendered more susceptible of the extremes of pleasure and of pain ; and our voluptuous enjoyments are perhaps more prejudicial than our sufferings. Had not the Creator wisely granted us the faculty of reasoning, we should have been the most wretched of all organised beings.

The tenure of life depends upon the sum of vitality originally deposited, and the extent of our drafts upon this capital, which we too frequently exhaust by untimely expenses. Expe-

rience has proved that, under ordinary circumstances, man can live six or seven times longer than the years required to attain puberty. This epoch is placed at our fourteenth year. This calculation would therefore yield from 84 to 98 years of age. Our own imprudences, and the disorders resulting from them, are more hostile in abridging this period than nature, all-wise and all-bountiful. Indeed, when we reflect on all the excesses to which we expose our frail and complicated being, as if we were resolved to try by every possible experiment how far it possesses the power of resisting destructive agents, we can only marvel in beholding so many instances of longevity. In this wasteful existence how many valuable hours do we not lose? how many real enjoyments have we not deprived ourselves of? When compared to the immensity of time, life is but an idle span. Let us deduct even from old age the years of infancy, the years of caducity, and the years of sleep,—alas! what remaineth of our manly and our energetic days? Maupertuis calculated that in an ordinary life man could scarcely enjoy more than three years of happiness, mixed up with sixty or eighty years of misery or insipidity; and yet how miserable are we at the thought of quitting this short-leased tenement, though every wretchedness renders our abode a constant scene of uneasiness. It has been calculated that out of about nine hundred

millions of human beings that are scattered over the globe, it is more than probable that we could not find nine thousand individuals blessed with happiness, even taking happiness in its most limited sense—content. Were it not for the terrors of futurity, it is more than probable that our existence would lose much of its value. Socrates termed philosophy “the preparation for death ;” the same may be said of our existence.

Happily for man, life is a dream, all is illusion ; sufferings alone are positive ; Pandora’s box is its best illustration. Could we have slept away our existence in constant visions, we should have lived as long as in a waking state. When we contemplate the flocks of human beings scattered like cattle on the face of the universe, with scarcely more intellect than the beasts of the same field, we might ask for what were they created ? doomed to all the horrors of sickness or of war, victims of their own follies or the ambitious projects of others ! As far as regards this life, it is worse than idle to seek a solution of the problem. In these enquiries we too often seek to guess that which we can never know, or to know that which we can never guess ! We all complain and murmur like the woodman in the fable, yet are loath to accept the relief we loudly call for.

The longevity of the first races, and the patriarchs, are records foreign to the investigations of natural history ; we must seek for more recent

examples. Haller had collected the records of many centenaries, amounting to sixty-two who had reached from 100 to 120; twenty-nine from 120 to 130; and fifteen from 130 to 140. Few instances are authenticated beyond this period: yet we find one Eccleston, who lived 143 years; John Effingham, who attained his 144th; a Norwegian, who counted a century and a half; and our Thomas Parr would most probably have passed his 152nd year but for an excess. Henry Jenkins lived to 169; and we have on record the case of a Negress, aged 175. The Hungarian family of John Rovin were remarkable for their longevity: the father lived to 172, the wife to 164; they had been married 142 years, and their youngest child was 115; and such was the influence of habit and filial affection, that this *child* was treated with all the severity of paternal rigidity, and did not dare to act without his *papa's* and *mama's* permission.

By the calculations of Sussmilch, out of one thousand individuals, only one attained 97; and not more than one lived to the age of 100, out of one hundred and fourteen thousand. In the census of Italy, taken under Vespasian, there were found fifty-four of 100, fifty-seven of 110, two of 125, four of 130, and three of 140. In China, under Kien Long, in 1784, there were only four individuals who had attained their 100th year. According to Larrey, there were at Cairo thirty-

five persons who had exceeded their century. In Russia, in 1814, out of eight hundred and ninety-one thousand six hundred and fifty deaths, were three thousand five hundred and thirty-one from 100 to 132. In a register of deaths in Paris, taken in 1817, there were found in twenty-one thousand three hundred and ninety-two, nine from 95 to 100, and the general proportion of centenaries in that city is one to three thousand.

What are the circumstances most favourable to longevity? This question is not easily answered; for we find in instances of advanced age that some individuals have led a most regular and abstemious life, while others have indulged in various excesses. These observations, however, are by no means calculated to form a conclusive opinion, as the constitutional vigour and peculiar idiosyncrasies of individuals differ widely. It is probable that a regular mode of living is the most likely to prolong our years, whatever may be that regularity in a comparative point of view. A sober man, who commits occasional excesses, is more likely to suffer than another man who gets drunk every night, provided that these excesses do not differ in regard to the quantity or quality of stimulus. In these melancholy instances the excitement is constant, and the indirect debility which it may produce has scarcely time to break down the system ere it is again wound up to its usual pitch, to use the vulgar expression, “by a hair of the same

hound.” The principal attribute of life that renovates for awhile its moral and its physical exhaustion is *excitability*, and a constant *excitement* is therefore indispensable, to serve as fuel to the consuming fire. This was to a certain degree the basis on which Brown founded his doctrine. He traced a scale of life like that of a thermometer,—health in the centre, death at each extremity : one scale ascending from health was graduated according to stimulating agency, the other to debilitating causes ; and therefore the system was to be stimulated or lowered according to this gradation. It would be foreign to this work to point out the absurdity of this theory, although we must admit its ingenuity, and to a certain extent its correctness. The chief practical objection to it was the diversity of constitutions and idiosyncrasies, and the different action of stimulating or depressing agents in health and in disease ; the effects of alimentary and medicinal substances being totally different in these several conditions.

According to habit, a certain sum of stimulus is requisite to keep up the necessary excitement ; and this sum cannot be immediately and suddenly withdrawn in weak subjects without some risk, in health, perhaps, the experiment may be safely made at all times, and under any circumstances, although it might be wiser to operate the change by degrees ; and it must moreover be recollected,

that an habitual drunkard is in a morbid condition, and must be treated accordingly.

Six causes chiefly exert their influence upon life :

1. Climate and soil.
2. Difference of races.
3. Complexion and stature.
4. Period of developement during gestation, and of subsequent growth.
5. Mode of living.
6. Moral emotions, occupations.

Climates that are moderately cold are more favourable to long life. This observation applies to the vegetable kingdom ; and trees that have scarcely attained their full growth in northern regions are drooping in the south. There also we find beasts and birds resisting the inclemency of the weather by the thickness of their coats and plumage, or a layer of grease ; while many animals burrow in the earth to seek a state of torpor and insensibility, until restored to active life by a more genial temperature. Dryness of soil is another source of health and life ; and the hardy mountaineer's existence is seldom abridged by the diseases that visit the inhabitants of damp and swampy regions. Sterile plains are more salubrious than regions covered with a rank and exuberant vegetation, or highly-cultivated grounds, from many obvious reasons. The humid earth is not turned up, and decayed vegetable substances are

not acted upon in a deleterious manner by the solar heat. When we consider the various causes of disease that must abound in crowded and corrupt cities, we might imagine that mortality would be much greater than in the country ; yet observation has not proved this difference to be as material as one might expect, at least as regards disease, the sad effects of poverty and starvation not being taken into account. Various reasons may be assigned for this apparent anomaly. In cities a more regular state of excitement prevails, and man's constant occupations scarcely give him time to attend to slight ailments, that, under other circumstances, might be aggravated. Moreover, intermittent fevers and visceral affections are more frequent in the country ; and cottagers are exposed to more constant damp and severer revolutions in the atmospheric constitution than citizens. The mortality amongst men is greater in cities than in women ; the latter do not enjoy so long a life in the country. March and April have been found the most fatal months. They are periods of atmospheric transition from cold to a higher temperature, and must therefore prove trying to the weak and the aged. The end of autumn is also deemed a sickly period ; and the equinoxes have ever been considered critical, the solstices much less injurious. In Great Britain and the north-westerly regions of Europe, northerly and easterly winds are more prevalent in March,

April, and May, owing, it is supposed, to the currents established to replace the warmer air, as it rises from the surface of the Atlantic and more southerly countries. These winds are generally dry and cold, followed by fogs, and give rise to catarrhs, bronchial and pulmonary affections. It is calculated that in our climes pulmonary affections carry off one-fifth of the population, or 191 in 1000.

In regard to the variety of races, it has been observed that those people who sooner attain pubescence are the shortest-lived. Precocious excitement must bring on premature old age. Negroes seldom attain an advanced period of life; and the progress of years is more rapidly described in their features and their form than in Europeans who have migrated to their clime. The negroes of Congo, Mozambique, and Zanguebar, seldom reach their fiftieth year. In northern latitudes longevity is more frequent: this is observed in Sweden, Russia, Poland, Norway. Some writers have looked upon the established religion of a country as influencing the duration of life; and Toaldo asserted that Christians are shorter-lived than Jews. To this observation it may be remarked, that Jews are in general a very sober, industrious, and active race, circumstances that must materially tend to prolong their days. Moreover, by their legislation they are very careful in the choice of the meat they consume. In

Catholic countries fasting may be taken into calculation, not from the effects of abstemiousness, which would be more favourable to health than injurious, but the sudden return to feasting and gormandizing, by way of revenge, when the fast is over. Shrove Tuesday and Easter Sunday are noted in red letters in the gastronomic almanac; and the suppers that follow the midnight masses of Christmas generally require the apothecary's aid on the following morning.*

In regard to conformation, very tall and spare subjects are seldom long-lived; and the same observation applies to the stunted and diminutive. A well-set body, with a broad and deep chest, a neck not over-long, with well-formed and firm muscles, generally hold forth a fair prospect of old age.

Children born before the regular period of gestation, those who have been weaned too early, or given to nurses whose milk was not of a proper quality, are seldom strong. Too rapid a growth will also shorten the space of existence.

Our avocations and pursuits materially affect health and the consequent duration of life; and the nature of the excitement man is submitted to produces a remarkable effect. It has been cal-

* The advocates of fasting have calculated that in one hundred and fifty-two hermits who had lived eleven thousand five hundred and eighty-nine years, the average age was seventy-three years and three months.

culated in France that one hundred and fifty-two academicians, whose aggregate years were ten thousand five hundred and eleven, averaged sixty-nine years and two months. The following calculation of Madden will further illustrate this curious subject.

AGES OF GREAT MEN.

Natural Philosophers.

Bacon	78	Euler	76
Buffon	81	Franklin	85
Copernicus	70	Galileo	78
Cuvier	64	Halley	86
Davy	51	Herschel	84
Kepler	60	Lalande	75
Laplace	77	Lewenhoeck	91
Leibnitz	70	Linnæus	72
Newton	84	Tycho Brahe	55
Whiston	95	Wollaston	62

Poets.

Ariosto	59	Burns	38
Byron	37	Camoens	55
Collins	56	Cowley	49
Cowper	69	Dante	56
Dryden	70	Goldsmith	44
Gray	57	Metastasio	84
Milton	66	Petrarch	68
Pope	56	Shenstone	50
Spencer	46	Tasso	52
Thomson	48	Young	84

Moral Philosophers.

Bacon	65	Bayle	59
Berkeley	79	Condorcet	51
Condillac	65	Descartes	54
Diderot	71	Ferguson	92
Fitche	52	Hartley	52
Helvetius	57	Hobbes	91
Hume	65	Kant	80
Kaimes	86	Locke	72
Malebranche	77	Reid	86
Stewart	75	St. Lambert	88

Dramatists.

Alfieri	55	Corneille	78
Goethe	82	Massinger	55
Marlow	32	Otway	34
Racine	60	Schiller	46
Shakspeare	52	Voltaire	84
Congreve	59	Colman	61
Crebillon	89	Cumberland	80
Farquhar	30	Geldoni	85
B. Jonson	63	De Vega	73
Molière	53	Murphy	78

Authors on Law and Jurisprudence.

Bentham	85	Blackstone	57
Butler	83	Coke	85
Erskine	73	Filangieri	36
Gifford	48	Grotius	63
Hale	68	Holt	68
Littleton	75	Mansfield	88
Montesquieu	66	Redesdale	82
Romilly	61	Rolle	68
Tenterden	78	Thurlow	74
Vatel	53	Wilmot	83

Miscellaneous and Novel Writers.

Cervantes	70	Le Sage	80
Scott	62	Fielding	47
Smollett	51	Rabelais	70
Defoe	70	Ratcliffe	60
Richardson	72	Sterne	56
Johnson	75	Addison	48
Warton	78	Steele	59
Tickell	54	Montaigne	60
Bathurst	84	Thornton	44
Hawkesworth	59	Hazlitt	58

Authors on Revealed Religion.

Baxter	76	Bellarmino	84
J. Butler	60	Bossuet	77
Calvin	56	Chillingworth	43
Doddridge	54	G. Fox	67
J. Knox	67	Lowth	77
Luther	63	Massillon	79
Melancthon	64	Paley	63
Porteus	77	Priestley	71
Sherlock	67	Wesley	88
Whitefield	56	Wycliffe	61

Authors on Natural Religion.

Annet	55	Bolingbroke	79
Cardan	75	Chubb	65
Sir W. Drummond	68	Dupuis	67
N. Freret	61	Gibbon	58
Lord Herbert	68	Spinoza	45
St. Pierre	77	Shaftesbury	42
Tindal	75	Toland	53
Vannini	34	Volney	66

Medical Authors.

J. Brown	54	Corvisart	66
Cullen	78	Darwin	72
Fordyce	67	Fothergill	69
Gall	71	J. Gregory	48
Harvey	81	Heberden	92
J. Hoffman	83	Hunter	65
W. Hunter	66	Jenner	75
M. Good	64	Paracelsus	43
Pinel	84	Sydenham	66
Tissot	70	T. Willis	54

Philologists.

Bentley	81	Burton	64
Casaubon	55	Cheke	44
Hartzheim	70	J. Harman	77
Heyne	84	Lipsius	60
Parr	80	Pauw	61
Pighius	84	Porson	50
Raphelengius	59	Salmatius	66
J. J. Scaliger	69	Sigonius	60
H. Stephens	71	Sylburgius	51
Vossius	73	Wolfius	64

Artists.

Baudinelle	72	Bernini	82
Canova	65	Donatello	83
Flaxman	71	Ghiberti	64
Giotto	60	M. Angelo	96
San Sovino	91	Verocchico	56
A. Carracci	49	Claude	82
David	76	Guido	67
Raphael	37	Reynolds	69
Salvator Rosa	58	Titian	96
P. Veronese	56	West	82

Musical Composers.

Arne	68	Bach	66
Beethoven	57	Burney	88
Bull	41	Cimarosa	41
Corelli	60	Gluck	75
Greby	72	Handel	75
Haydn	77	Kalkbrenner	51
Kerser	62	Martini	78
Mozart	36	Paesiello	75
Piccini	71	Porpore	78
Scarlatti	78	Weber	40

RESULT.

The result, then, that we derive from these tables is, that natural philosophers have the longest lease of existence, the united ages of the twenty enumerated being one thousand five hundred and four years, which gives an average of seventy-five for each.

The results of the other classes, with respect to their united ages, and the average each, are—

		Average.
Moral philosophers . united ages	1417	70
Sculptors and painters	1412	70
Authors on law and jurisprudence	1394	69
Medical authors	1368	68
Authors on revealed religion	1350	67
Philologists	1323	66
Musical composers	1284	64
Novelists and Miscellaneous authors	1257	62½
Dramatists	1249	62
Authors on natural religion	1245	62
Poets	1144	57

In this *resumé* we find that poets are the shortest-lived; next to them, authors on natural religion, dramatists, and novelists. May not this

circumstance be attributed to the fervor of their imagination and to their unequal mode of living? A species of madness is the attribute of genius. Many authors on natural religion may come under the denomination of monomaniacs. The jealous irritability of poets and dramatists,—and next to them in the scale of life we find musicians,—may also contribute to wear them out, and bring on various chronic diseases, by digestive derangements; more especially as their habits of living are seldom regular, fits of sobriety alternating with bouts of merry-making. Moral philosophers, painters, and sculptors, whose average life appears the longest, follow more sedentary pursuits; and, although artists in general cannot boast of much discretion in their mode of living, the nature of their profession requires much steadiness. It is moreover to be observed that, in the preceding calculation, historical painters have chiefly been noticed. Would the same calculation apply to the lighter branches of the art? It has been observed that actors generally attain old age, notwithstanding the fatiguing and harassing nature of their profession. This may be attributed to the constant excitement of a similar nature to which they are subject, as well as to their continued exposure to the sudden transitions from heat to cold, which renders them less susceptible of the variations of temperature that affect those who can avoid these vicissitudes. Any person who would expose himself to the constant

checked perspirations to which dancers are liable, would infallibly pay dear for the experiment; and those who have had occasion to witness the fatigues of their exercises, marvel at their not being constantly attacked with pulmonary inflammation, and the many maladies that result from similar exposures. On the very same principle, troops when engaged upon active service do not suffer from the inclemencies of the weather, although saturated with wet by day, and sleeping under torrents of rain by night. So long as they are marching with an object in view, this excitement supports them, even against hunger; but the moment this excitement ceases, let them halt, in tranquil cantonments, or commence a retreat under unfavourable circumstances, that moment the invasion of disease is observed. The chief source of health and long life is an equilibrium state of the circulation. This condition a moderate mental excitement tends to maintain. Depression, on the contrary, will produce a languid flow of the vital stream, congestion, and chronic diseases.

On the same principle, good temper and hilarity are also necessary to prolong life. Violent passions must tend to occasion dangerous determinations, while the inward gnawings of offended vanity and pride corrode every viscus, and lay the seeds of future mental and bodily sufferings. Apathy and insensibility are, unfortunately, the best sources of peace of mind, and, as Fontenelle

observed, a good stomach and a bad heart are essential to happiness. Perhaps the best maxim to prolong our days, and render them as tolerable as possible, is the "*Bene vivere et lætari.*"

I have just observed that conformation materially affects our existence; and this circumstance may in a great measure be referred to temper, and the wear and tear that it occasions in ill-conditioned individuals. Little people seldom attain the longevity of stronger individuals; and it is also a well known fact that diminutive persons are generally spiteful and malicious. As Providence has bestowed destructive venoms on reptiles, so has it gifted these insignificant members of society with obnoxious qualities, to make amends for their want of physical power in the strategies of attack and defence. The same observation holds good with the deformed; but here we have a moral cause for this sourness of disposition. They too frequently are objects of ridicule, contempt, or pity, sentiments the most humiliating to mankind. In childhood they are not able to partake of the boisterous and active sports of their companions; they have not the power to resent an injury, and the more powerless we are, the greater is our thirst of revenge. Hence does tyranny degrade, and renders its victims, cruel and vindictive. The deformed, moreover, find it necessary to improve their intellectual faculties, which in aftertimes

fill their quivers with keen shafts of retaliation. In this study they also have more leisure, and they apply to their books while their comrades are at play. This very study adds to their sense of inferiority ; they can never hope to share the warrior's laurels, or, what is perhaps still more painful, the myrtle of successful love. Their only chance of success in either of these careers is by kindling wars by their intrigues, or winning a woman's heart by intellectual superiority,—two very improbable events. Thus they gradually envy men who are looked upon by the world as their superiors, and hate women for the preference they show to those privileged individuals. In general we find these ill-shaped beings bitterly sarcastic whenever woman's name is mentioned. Pope, perhaps from these very reasons, was inexhaustible in his abuse of the sex ; and Boileau abhorred them, since he had been emasculated by a turkey-cock.

The intellectual superiority of hunchbacks has also been attributed to their physical condition ; and it is generally believed that the circulation of blood in the brain is more rapid than in well-conformed subjects, and this increased action is supposed to contribute materially to the vivacity of the imagination, and the quickness of apprehension. Another circumstance is said to increase their mental powers, and that is, their continence, considered both by the ancients and the moderns as

a source of intellectual energies. Minerva and the Muses were virgins; and in this and other fabulous traditions, we find the ancients illustrating in their mythologic allegories many physical facts and observations. Our Bacon had made the same remark; and Newton, and many other great men, considered the passion of love beneath the dignity of science. Continence and abstinence were deemed by Horace as indispensable privations in the cultivation of genius. In the deformed both are to a certain degree natural, or at least cannot be lost sight of without endangering life. The digestive powers of the deformed are generally weak; and this debility has ever been looked upon as a concomitant of superior intellects. Thus in Celsus, "*Imbecilli stomacho penè omnes cupidi litterarum sunt;*" while on the contrary, "*Obesus venter non parit subtilem intellectum.*"

The common expression of a child being too clever to live, is unfortunately founded on observation. Scrofulous and sickly children are in general remarkable for the quickness of their intellects; and Rousseau maintained that a man who could meditate was a depraved animal. It is a fact that the perfection of one faculty can seldom be attained but at the expense of others. The more our faculties are generally called into action, the less perfect will they be individually; — "*Pluribus intentus, minor est ad singula.*" Thus,

the singing of birds is improved by depriving them of sight.

The influence of the mind upon our health is as evident as the influence of our health in the duration of existence. This corollary explains the shortness of life of the diminutive and the deformed, unconnected with such physical defects of organisation as might impede the due exercise of their organs.

The fable of Prometheus is a strong illustration of the pernicious effects of intemperance; and by Darwin, and other physiologists, has been considered as comparing the celestial fire that he purloined to the artificial inspirations of excitement that ultimately preys upon the liver and the other viscera like a voracious vulture. A much deeper philosophy is concealed in this theogenic allegory. Prometheus was the son of Japetus; brother to Atlas, Menœtius, and Epimetheus, who all surpassed mankind in fraud and in guilt. Prometheus himself scoffed the gods, and violated their shrine. Heaven and Earth had formed his father, who had united his destinies with Clymene, one of the Oceanides. Thus Prometheus and Epimetheus arose from the very cradle of the universe; and their very names, Προμανδάνειν and Επιμανδάνειν, signify foresight and improvidence, — *prædiscere et postea discere*, — the prevalent characteristics of all mortals who either tend to promote or retard the progress of human

reason and human happiness. Prometheus strove impiously to possess himself of Divine knowledge, and created man with a base amalgam of earth and the bones of animals, vivified by the celestial fire he had obtained. Jupiter, indignant at his audacity, commanded Vulcan to create a beauteous tempter in the form of woman, on whom every attractive gift might be conferred; and Pandora was sent upon earth with the fatal present of the father of the Gods,—the box that contained all the evils and distempers that were destined for mankind. The foresight of Prometheus resisted her charms; his improvident brother opened the dreaded casket. Have we not here an illustration of the vanity of science, that aims even at Divine attributes, and whose votaries, like Prometheus, would endeavour, if possible, to deprive wisdom of her power, and break down the boundaries of human intellects? His punishment describes in energetic language the endless and consuming studies of the learned, whose very viscera are corroded in lucubrations too often fruitless, and not unfrequently injurious to themselves and others. Hercules alone could relieve him from his torments:—and does not Hercules in this allegory typify the power of reason, that enables us to release the mind from the trammels both of ignorance and vanity, separated from each other by a gossamer partition? Prometheus, who could resist the most powerful of

temptations,—beauty and talent combined,—dared Olympus to seek for that wisdom which would have doomed him to everlasting sufferings, had not strength of mind and the powers of reflection destroyed his merciless tormenter. Can we be surprised that the ancients consecrated games to this beautiful allegory?—games that are still carried on in our days; but, alas! where every vain competitor pretends that he has reached the goal with an unextinguished torch!

CRETINISM.

THIS singular disorder was first discovered and noticed by Plater, about the middle of the seventeenth century, among the poor inhabitants of Carinthia and the Valais, where, as in the valleys of the Lower Alps and the Pyrenees, it is also found to be an endemic affection. According to Sir George Staunton, it is also observed in Chinese Tartary. It has been erroneously confounded by some writers with bronchocele and rachitis, from both of which it is totally distinct.

Cretinism presents various modifications in kind, and every intermediate grade between that extreme degree of physical and mental debasement which is characterised by the utmost deformity, and entire absence of mental manifestation, the organic and vegetative functions only being performed. There are certain circumstances that distinguish cretins from idiots; and their infirmities appear to depend upon endemic or local causes, regarding which much diversity of opinion has prevailed both amongst medical men and travellers.

The cretins were also called *Cagots* and *Capots*. In Navarre these unfortunates go by the name of

Gaffos and *Ganets*; and in various valleys of the Pyrenees they are called *Gézits* or *Gezitains*. Near La Rochelle some of them are also found, and there they are known by the appellation of *Coliberts*; and in Brittany *Cacons* and *Cagneux*. The derivation of these names shows the contempt and disgust that they excited,—*Cagot*, according to Scaliger, being derived from *Canis Gottus*, or *Dog of a Goth*; *Colibert* is traced to *quasi libertus*, or slave. The Spaniards call them *Gavachos*, a term of reproach, which they also applied to the French during the Peninsular struggle.

The body of these poor creatures is stunted, their height not exceeding four feet. There is a total want of due proportion between it and the other parts, the height of the head with reference to the body being from one-fourth to one-fifth, instead of one-eighth, the natural proportion; the neck is strong, and bent downwards; the upper limbs reach below the knees, and the arm is shorter than the fore-arm; the chest narrow, the abdomen hemispherical, and of a length not exceeding the height of the head; the thighs, with the haunches, of greater width than the shoulders, and shorter than the legs, the calves of which are wanting; the feet and toes distorted. In the head, the masticating organs, the lower jaw, and the nose, preponderate considerably over the organs of sense and intelligence; the skull is depressed, and forms a lengthened and angular ellipsis; the

receding forehead presents internally large frontal sinuses, to which the brain has yielded part of its place ; the top of the head is flattened, instead of being vaulted ; the occiput projects but slightly, and runs almost even with the nape of the neck, as in ruminating animals. The face is neither oval nor round, but spread out in width ; the eyes are far apart, slightly diverging, small, and deep-seated in their orbits ; the pupil contracted, and not very sensitive to light ; the eyelids, except when morbidly swollen, are flaccid and pendent. Their look is an unmeaning stare, and turns with indifference from everything that is not eatable. The elongated form of the lower jaw, the thick and padded lips, give them a greater resemblance to ruminating creatures than to man. The tongue is rather cylindrical than flat, and the saliva is constantly running from the angles of their mouth. Enlargement of the thyroid glands generally prevails, sometimes to an enormous extent. Indeed, this appearance is commonly considered as a distinguishing sign of cretinism. The other glands of the throat are also obstructed. Many of these poor wretches are both deaf and dumb ; yet do they appear unconscious of their miserable existence. Stretched out or gathered up under the solar rays, their head drooping in idiotic apathy, they are only roused from their torpor when food is presented to them.

This endemic malady is supposed to arise from

the use of snow-water, or of water impregnated with calcareous earth. Both of these opinions are without foundation. All the inhabitants of districts near the glaciers drink snow and ice waters without being subject to the disorder; and the common waters of Switzerland, strongly impregnated with calcareous substances, are most salubrious. At Berne the waters are extremely pure, yet Haller observed that swellings of the throat are not uncommon. De Saussure has assigned another cause, and refers the disorder to the physical features of the mountainous districts in which it prevails. The valleys, he tells us, are surrounded with very high mountains, sheltered from currents of fresh air, and exposed to the direct, and, what is worse, the reflected rays of the sun. They are marshy, and hence the atmosphere is humid, close, and oppressive. When to these chorographical causes, he farther says, we add the domestic ones, which are also well known to prevail among the poor of these regions,—such as innutritious food, indolence, and uncleanness, with a predisposition to the disease from an hereditary taint of many generations,—we can sufficiently account for the prevalence of cretinism in such places, and for the most humiliating characters it is ever found to assume.

This specious reasoning, however, is overthrown by observation. In the first instance, this character of the country does not affect its other inha-

bitants; and secondly, the *goître* is found in warm latitudes, and Mungo Park observed it amongst the Africans of Bambara, on the banks of the Niger. Marsden has also seen it at Sumatra. Moreover, this affection is scarcely ever seen in the mountains, but principally prevails in the valleys.

It is more than probable that these ill-favoured creatures belong to a particular race; for we must take care not to confound *goître* with cretinism, since *goître* is common where cretinism is prevalent. It has been remarked that the offspring of the natives of the Valais who intermarry with persons from the Italian side of the Alps, are more subject to *goîtres* than those born of native parents; and that females who have husbands from the higher Alps, seldom have children affected with this infirmity. It is pretty clear that in these observations *goître* and cretinism are confounded.

That these miserable cagots belong to a particular race of men, most probably accidentally degraded in their transmission from our primitive stock, appears most likely. We have sought the derivation of the several terms of contempt and disgust attached to them in different countries, to which migration may have led their parents. Some writers have traced their descent to the Goths and Vandals, thus chastised for their devastations. Gébelin, Belleforêt, and Ramont con-

sider them as descendants of the Visigoths; while Marca, bishop of Cousérans, denounces them at once as Jews and Saracens; and other clerical writers have maintained that they are the miserable relicts of the heretic Albigenses who had escaped the holy massacres of 1215; although there did exist cagots in the year 1000, in the abbey of St. Luc, as they are described in a *for* of Navarre, bearing date 1074, and issued by Ramirez.

These helpless beings have also been considered as the offspring of Bohemians and gipsies. Bishop, or rather Senator Gregoire, maintained that they sprung from the hordes of northern barbarians who overran the south of Europe in the third and fourth centuries. Whatever might have been the origin of these poor creatures, they seem to share that ignominious destiny that has marked various races in different countries. The *Agotos* of Navarre, the *Maragotos* of Leon, the *Batuecos* of Castile, the *Wendes* of Silesia, are all held in as much contempt as the *Parias* and the *Vaddahs* of India. Even in Otaheite a degraded caste was found, from which victims were selected to appease Divine wrath, or propitiate their gods.

The traditional contempt in which certain races are held, a contempt that seems to have affected their physical appearance, may perhaps be traced to the degradation of slavery, that seems to deprive man of all his proud attributes, both in a

moral and physical point of view. The effects of tyranny, and the distinctions that oppression has created in the several castes and ranks of mankind, are everywhere evident. What a difference exists in Scotland between the chieftains and the humbler individuals of their clans!—between the naïres of India and their vassals ! In France, said Buffon, you may distinguish by their aspect, not only the nobility from the peasantry, but the superior order of nobility from the inferior, these from the citizens, and citizens from the peasants. “The field-slaves in America,” observes the enlightened Dr. Smith, “are badly clothed, fed, and lodged, live in small huts in the plantations, remote from the example and society of their superiors. Living by themselves, they retain many of the customs and the manners of their ancestors. The domestic servants, on the other hand, who are kept near the persons or employed in the families of their masters, are treated with great lenity, their service is light, they are well fed and clothed. The field-slaves, in consequence of their condition, are slow in changing the aspect and figure of Africa ; while the domestic servants have advanced far before them in acquiring the agreeable and regular features, and the expressive countenance, of civilised society. The former are frequently ill-shaped ; they preserve in a great degree the African lips, and nose, and hair ; their

genius is dull, and their countenances sleepy and stupid. The latter are straight and well-proportioned ; their hair extends to three or four, sometimes even to six or eight inches ; the size of their mouth is handsome, their features regular, their capacity good, and their looks animated." Dr. Prichard has also stated that similar changes become visible in the third and fourth generations in the West India islands ; and I have seen several negresses in those colonies perfectly beautiful. In the Bahama islands I knew a female slave of the name of Leah, belonging to my late friend Mr. Commissary Brookes, as black as jet, and descended in the third generation from African parents, whose features would have vied in symmetry with the fairest specimen of the Caucasian race.

Let us not, therefore, seek in snow-water or calcareous impregnations for the causes of deformity and degradation in any unfortunate castes of mankind. Their misery may more probably be traced to the iron rod of despotism, or the oppression of bigotry,—influences that mark out races as abject slaves, or objects of Divine wrath, that ought to be scorned by the wealthy and the powerful, and spurned and persecuted by the faithful and the elect ; although, when it has served its purposes, priestcraft has held up the cagot, and the leper, and the idiot, as objects of

veneration. When the tourist, in his Alpine and Pyrenean excursions, meets a wretched cagot, let him pause and contemplate the offspring of slavery, and reflect on what man is, and on what man might be,—nay, on what man *will* be.

TEMPERAMENTS.

THE different prevalent propensities in various individuals, the developement of which appeared to be under the influence of a certain and constitutional organisation, have received the name of temperaments; or, rather, this term applies to this peculiar organisation of the constitution or idiosyncrasy. The Greek physiologists were the first to classify these peculiarities, or *temperamenta*, —the *naturæ* of Hippocrates, the *mixturæ* of Galen. They considered organised bodies as an assemblage of elements endowed with different properties, but combined in such manner that their union should constitute a whole, in which none of them should predominate in a healthy condition; but, on the contrary, they were to modify and *temper* each other, their simultaneous action being directed and controlled by the spirit of life, *spiritus*. It was the due combination of these elements that constituted a perfect temperament; their aberrancy produced disease of body or of mind.

The ancients divided these elements into cold and hot, dry and moist; from the combination of these principles they classified the fluids of the

body. The blood was hot and moist, the bile hot and dry, the phlegm cold and damp, and the melancholy cold and dry. This division led to a further classification ; and temperaments, according to the predominance of these elements, were divided into the *sanguineous*, the *bilious*, the *phlegmatic*, and the *melancholic*.

These supposed radical fluids, influencing the whole animal frame, were dependent upon certain organs for their specific production. The blood was furnished by the heart, the phlegm by the head, the yellow bile by the gall-duct, and the black bile or atrabile,—the principle of melancholy,—by the spleen. Notwithstanding the many revolutions in the doctrines of physiology that have shaken the schools since the days of Hippocrates, this classification of his has prevailed to a certain degree to the present day, and has laid the foundation of all the systems of temperaments, constitutions, and natural characters, that have at various periods been advanced by philosophers ; the only novel introduction in this ancient classification being the nervous temperament, which, after all, is only a modification of the four other categories.

To illustrate the operations of these temperaments, it became necessary to adopt terms expressive of their combination, and *temper* and *humour* were adopted. Both are Latin terms ; the first, in its original sense, imports mingling,

modifying, tempering the four radical fluids, and producing that equilibrinous condition of the frame termed *constitution*. *Humour* was derived from the Greek *χυμὸς*, *chumos*; and its radical sense imported moisture, or fluid of any kind. Hence *humid* and *humidity*. This doctrine of fluidity is still applied to many functions that we cannot otherwise describe, and we talk, although in a figurative manner, of the nervous fluid, the vital fluid; and a good humour, a bad humour, a vein of humour, or a humorous vein, are illustrations of peculiar tempers and temperaments,—for temperaments are still distinguished by the same terms applied to them by the ancients, and we describe one man as *choleric*, or bilious, for *cholera* (*χολή*) means bile; another as being *melancholic*; a third of a *sanguine disposition*; and a fourth of a *phlegmatic habit*. The *sanguine*, that imports a predominance of the blood, indicated a warm and ardent exuberance of spirits; whereas the *phlegmatic*, denoting a thin and cold watery fluid, referred to a frigid and spiritless indolence.

We thus see that modern physiology has scarcely advanced this branch of science, for the *nervous temperament* may be considered as merely a modification of the other ones; and it is more than probable that the old classification will long prevail, notwithstanding the ingenuity of modern hypotheses. Husson divided the temperaments

into those that referred to the vascular system, to the nervous system, and to the muscular system, with subdivisions applied to regions and to organs ; all these temperaments being either natural and primitive, or acquired. Dr. Thomas, of Paris, has founded his arrangement according to the predominance of the head, chest, or abdomen,—or the mental, circulatory, or digestive organs,—and according to the relative bulk and predominance of these three regions will be the relative energy of the mental, muscular, or abdominal functions. Notwithstanding the ingenuity of these systems, the old arrangement, as I have already observed, is likely to prevail ; and as Blumenbach observes, that although this division was founded on an imaginary depravation of the elements of the blood, if made to stand alone it will prove both natural and intelligible.

This division I shall therefore endeavour to illustrate. In the *sanguineous temperament* the heart and arteries possess a predominant energy ; the pulse is strong, frequent, and regular ; the veins blue, full, and large ; the complexion florid, the countenance animated, the stature erect, the muscular forms marked and firm ; the hair of a yellow, auburn, or chestnut colour ; the nervous impressions acute, the perception quick, the memory retentive, the imagination lively and luxuriant, the disposition passionate but not vindictive, and

passion is easily appeased ; amorous, and fond of conviviality and good cheer.

In this temperament we find athletic strength and fortitude of mind in resisting the power of external agency, with mental tranquillity in the midst of danger ; a calmness arising from a consciousness of power, and from less acuteness of external impressions and mental perceptions. Such a man, when roused to action, will endeavour to surmount every physical difficulty ; but he will rarely attain pre-eminence in sciences and the fine arts, which require exquisite sensibility and mobility,—qualities seldom met with in such forms as those described by the poets in Hercules and Ajax.

In the *choleric* or *bilious* temperament the liver and biliary organs are as redundant in their power as the sanguineous vessels, and, for the most part, at the expense of the excernent or cellulous and lymphatic system. The pulse is strong and hard, but more frequent than in the sanguineous ; the veins superficial and projecting ; the sensibility extremely acute and easily excited, with a capacity of pondering for a long time on the same object. The skin is sallow, with a tendency to a yellow tinge ; the hair black or dark brown ; the body moderately fleshy, the muscles firm and well-marked, the figure expressive ; the temper of the mind abrupt, impetuous, and violent,—bold in the conception of a project, inflexible in its pursuit,

persevering and dauntless in its execution. These are the temperaments that have urged men both to noble and to execrable deeds. Such were Alexander, Brutus, Mahomet, Cromwell, Charles the Twelfth, Robespierre, Napoleon. All these celebrated characters evinced from their earliest youth the ambitious nature of their dispositions; and though circumstances might have checked the developement of their predominant passions, it was also to adventitious circumstances that they owed their elevation, and the opportunities of displaying their good or evil qualities. Most of these men were irascible, vindictive, and cruel, and equally susceptible of ardent love and mortal hate. In these temperaments we find a mixed exuberance of blood and bile in a constant struggle for predominance.

The *melancholy* or *atrabilious* temperament is of a different character. Here the biliary organs are brought into a constant and a morbid action, while the sanguineous system is weak and irregular. In these gloomy subjects the skin assumes a sallow, unearthly tinge, the pulse is hard and contracted, the digestive functions torpid and irregular, the imagination is gloomy and full of suspicion, and a dark gloom is shed on all around the morbid sufferer, for such he may be called, since the condition under which he labours may be considered one of disease. These subjects are prone to various monomanias; uncertain, fickle, and oftentimes

capriciously cruel. Tiberius and Louis the Eleventh are quoted as examples of this temperament. Many melancholic individuals have displayed great genius, and at the same time great depth of thought. Richerand considers Tasso, Pascal, Zimmermann, and Rousseau as illustrating this unhappy disposition.

The fourth temperament is the *phlegmatic, lymphatic, pituitous, or watery*, for all these terms used by different physiologists are synonymous. Here the proportion of fluids is too considerable for that of the solids; hence the body attains a considerable, unwholesome bulk. The muscles are soft and flaccid, the skin fair and transparent, the hair flaxen or sandy, the pulse weak and slow, all the vital actions are languid, the memory little tenacious, and the attention wavering; an insurmountable indolence prevails; and, averse to mental and corporeal exercise, the *far niente* is their greatest enjoyment, and a night-cap is preferable to a diadem. These subjects are generally good, easy persons; susceptible of kindly feelings, but of a transient nature. Their mind is generally depraved by effeminacy, and their love is purely animal. They are not courageous; yet they show great tranquillity of mind in moments of danger, and would rather quietly sink than struggle with the waves. If their dwelling was on fire, they would calmly walk out of it, but not exert themselves to put down the conflagra-

tion ; and, when hereditary power places them at the helm of a state, a wreck of the vessel may be speedily expected, unless the sceptre is wrested from their feeble hands by the choleric or the atrabilious enthusiast.

The fifth, or *nervous* temperament, as I have already stated, may be considered of a complex nature, as it influences the sanguineous as well as the choleric, the melancholy, and the phlegmatic. In this constitution the sentient system predominates, and there exists a great susceptibility to all external impressions. This temperament is generally acquired, and proceeds from a sedentary life, too great an enjoyment of sensual pleasures, and fanciful ideas brought on by romantic readings and romantic thoughts indulged in hours of idleness. The determination of such individuals is prompt, but undetermined ; their affections, warm for a while, are selfish and fickle ; their sensations are vivid, but leave no impressions. Women, especially when educated in boarding-schools, essentially belong to this class, and are subject to hysterical and convulsive affections that render them a plague to others and a nuisance to themselves. In man the muscles are small, flabby, and wasted. The nervous may possess much vivacity of conception, but no depth of judgment ; and, in general, their productions are as morbid as their mind. This condition frequently attends the melancholy temperament,

“that wings the soul, and points her to the skies.”

Nervous excitability seldom prevails in the sanguineous constitution, where muscular masses are pronounced in athletic forms. Hence the sanguineous are not easily brought into action; but, when once roused, their energies are irresistible. This power is beautifully described by Virgil in the conflict between Entellus and Dares; still are these exertions governed by nervous influence, and the result of the excitability and contractibility of the muscular fibre, termed by Chaussier its *myotility*.

Mason Good has very justly observed that these temperaments, or generic constitutions, are perpetually running into each other, and consequently that not one of them, perhaps, is to be found in a state of full perfection in any individual; he further aids this remark by the following illustration: “Strictly speaking, Mr. Pitt and Mr. Fox belonged equally, in the main, to the second temperament; there was the same ardour, genius and comprehensive judgment in both, with a considerable tendency to the sanguineous, and hence with more irritability, but more self-confidence, audacity, and sanguine expectation; the latter, while possessing the same general or bilious temperament, was at the same time more strongly inclined to the lymphatic, and hence his increased corporeal bulk, and with

less bold and ardent expectation he possessed one of the sweetest and most benevolent dispositions to be met with in the history of the world. The first was formed to be revered, the second to be beloved; both to be admired and immortalised."

I apprehend that a profound study of human temperaments and propensities may afford a more desirable guide in the education of youth, and the selection of men in the different concerns of life, than that of either physiognomy or phrenology; although the temperament must materially affect the general character of the countenance. Yet, from the apparent prevalence of any temperament we are not to form a rash and hasty judgment in regard to the future capacities or propensities of youth. As one temperament runs into another, and assumes a complex form, so can education regulate the one that naturally predominates, and modify it by a fusion with another. Thus, the restlessness of the bilious and choleric may be attuned to a phlegmatic state by the power of reason, and the brute courage and audacity of the sanguineous checked by inspiring sentiments of true valour. That every temperament, excepting perhaps the phlegmatic, is capable of displaying a bravery, has been well described by Joanna Baillie in the following lines :

The brave man is not he who feels no fear,
For that were stupid and irrational ;
But he whose noble soul its fear subdues,
And bravely dares the danger nature shrinks from.
As for your youth, whom blood and blows delight,
Away with them !—there is not in their crew
One valiant spirit.

SOLAR INFLUENCE.

WHILE both ancient and modern physiologists were of opinion that the various phenomena of organised bodies were influenced by lunar phases, the power of the solar rays was not less active in regulating our functions both in health and in disease. The name of Phœbus signified the torch of life, and Apollo was the father of medicine and the fine arts. The sun was considered as a deity in most countries, the Supreme Being,—the Father of Light, Diespiter,—Jupiter Jehova, the creator of all living matter,—the residence of the Most High—*In sole posuit tabernaculum suum*, said the Psalmist ;—and in Egypt three hundred and sixty-five priests were ordained to watch its heavenly movements during the year; while many philosophers attributed the propagation of the human race to the union of man with the orb of day. The disciples of Plato and Pythagoras considered it as possessing a soul ; and Origenus, in his *Periarchon*, maintained that it displayed both virtues and vices,—an heretical doctrine very properly condemned by the second Synod of Constantinople ; and, although St. Augustin was of that opi-

nion, it was warmly combated by St. Basil, St. Ambrose, and many other beatified divines. Anaxagoras, on the contrary, considered this luminary to be a burning stone; Plato called it a compact fire; Aristotle maintained that it was formed of one-fifth of the elements that constitute the planets; Epicurus, a mass of lava, or ignited pumice stone; Xenophon asserted that it was fed by exhalations, and Zeno by watery vapours; Empedocles considered it a translucent body; Philolaus, a concave mirror, concentrating the rays of light from every part of the universe to reflect it upon nature. Kepler was of a similar opinion, and farther insisted that the sun was composed of a limpid fluid upon which a luminous æther was reflected, whence its centre was blue, while the limbs were yellow. A modern philosopher, Woodward, attempts to show that the sun and fixed stars are masses of electric fluid, requiring no alimentation, yielding no smoke, and the light that emanates from them offers the bluish brilliancy of the electric spark. It has been justly observed, that if, like Eudoxus, we endeavoured to approach this luminary, the better to study and describe its nature, we should still remain in impenetrable darkness,—in which I must leave the matter, to confine myself to those influences which experience seems to show that the sun actually exercises on the animal economy.

The genial and invigorating glow that moderate

solar heat produces has ever been considered as tending to prolong our life. Hippocrates observed, that old men are double their age in winter, and younger in summer. To enjoy this reviving influence, the ancients had terraces on their house-tops called *solaria*, in which, to use their own expression, they took a solar air-bath. Pliny the younger, in speaking of his uncle, tells us, *Post cibum, æstate, si quid otii, jacebat in sole*. The ancients fancied that when the sun rose diseases declined, and *Levato sole levatur morbus* became a medical axiom. Aristotle records the case of an innkeeper of Tarentum, who, although able to attend to his business by day, became insane so soon as the sun had set. The moderns relate many similar instances of derangement brought on by the absence of solar influence. Bouillon mentions a woman who lost her senses at sunset, but who recovered them with break of day. Other cases are recorded of a different nature, when maladies were aggravated by this influence. Sauvages tells us of a woman who became maniacal whenever the sun was at its zenith; an influence that could not be prevented even by various stratagems, such as keeping her in a dark room, and deceiving her in regard to the hour. Humboldt knew a Spanish lady in Madrid who lost her voice the moment the sun dipped in the horizon, but the paralysis of the nerves of the tongue ceased the following morning. A removal to Naples cured this sin-

gular affection. Parham relates the cases of several individuals who were deprived of vision when the sun had set. In a former paper I have alluded to the effects of a vivid flood of light upon the Italian peasantry, as observed by Ramazzini. Daily practice shows us that the paroxysms of fever and various maladies are under a similar influence; and the evening gun in our garrisons is often the signal of severe exacerbation in certain febrile cases, while the *reveillée* develops severe aggravation in others. Sydenham and Flo-
yer had observed that the gout and asthma were usually ushered in after our first sleep; and I have noticed that, during the prevalence of the cholera, the invasion of this fatal disorder generally occurred towards daybreak. The ancients divided their elementary predominance according to the diurnal cycle: thus, morning regulated the blood, noon the bile, evening the atrabile, and night the cold phlegmatic influence. Nor was this arrangement unnatural: we more or less observe it in a state of health, when man awakes refreshed and active at morn; towards noon his train of thoughts becomes more serious and busy; in the evening his mind is more gloomy and susceptible of unpleasant impressions; until night either sheds its poppies o'er his couch, or agitates his frame with its fearful dreams. The repose of night is ever more refreshing than that of day, however we may have changed the natural appli-

cations of our hours, and find, as Seneca said of Roman civilisation, that *antipodes habemus in urbe*. The influence of night and day is equally observable in animals. Towards evening myriads of insects, who had shunned the solar heat, hum around us ; while night calls forth its choristers ; and as they cease to sing, other creatures proclaim the dawn. Some animals, such as the *simia beelzebud*, and the *simia seniculus*, salute both the setting and the rising sun with fearful howls ; and it may be considered as a law of nature, that we cannot turn night into day with impunity.

Dr. Balfour's opinion on the influence of the heavenly bodies is of great weight : he conceives that the influence of the sun and moon when in a state of conjunction, which he names solar-lunar influence, produces paroxysms or exacerbations in continued fever, in all cases at least where paroxysms are observable. As this influence declines in consequence of the gradual separation of these luminaries from each other, and their getting into a state of opposition, a way is left open for a critical and beneficial change ; in other words, that paroxysms and exacerbations in fever may be expected to take place at spring-tides, and crises at neap-tides.

It has been observed in intermitting fevers, that paroxysms of the quotidian recur in the morning, the tertian at noon, and the quartan in

the afternoon ; in no instance do they take place at night.

There can be no doubt that lunation, more especially in tropical climes, influences diseases ; but the effects of insolation are everywhere observable. One of the most serious accidents resulting from this exposure is the *ictus solis*, the *coup de soleil* of the French, and the *σιγίασις* of the Greeks, from the star *Sirius*, to whose influence they attributed the scorching heat of the dog-days. This attack is in general sudden, and the patient falls down as if struck with a blow on the head. Troops on a march, and labourers in the field, frequently are the victims of this solar power, which usually kills them on the spot. It has been known to destroy great numbers. In Pekin, from the 14th of July to the 25th, in the year 1743, it is related that eleven thousand persons were struck dead. On a hot day's march in Portugal, I lost six men in a brigade under my charge. They first reeled as if under the influence of liquor, and then fell dead with a slight convulsive struggle. One of them, the batman of the paymaster of the 3rd foot, or Buffs, was struck dead while speaking to me. A great number of greyhounds perished on the same march ; but no other species of dog seemed to suffer, although we had many pointers and spaniels with us. Horses, mules, and cattle were

also exempt from the attack ; though it proved fatal to some weak donkeys who were following the troops. The shakos worn by our army are well calculated to preserve the soldier from these accidents, to which armies are constantly exposed during summer operations.

SWEATING FEVER.

THIS disastrous pestilence, which proved, if possible, more fatal and terrific than the cholera, made its first appearance in London in 1480 or 1483, first showing itself in the army of Henry VII. on his landing at Milford Haven. In London it only broke out a year or two after, and visited that capital occasionally for upwards of forty years. It then spread to Holland, Germany, Belgium, Flanders, France, Denmark, and Norway, where it continued its ravages from 1525 to 1530; it then returned to England, and was observed for the last time in 1551.

Dr. Caius calls it a pestilential fever of one day; and it prevailed, he says, with a mighty slaughter, and the description of it was as tremendous as that of the plague of Athens. Dr. Willis states that its malignity was so extreme, that as soon as it entered a city it made a daily attack on five or six hundred persons, of whom scarcely one in a hundred recovered. This malignant fever ran its course in a single paroxysm; and the cold fit and hot fit were equally fatal. If the patient was fortunate enough to reach the sweat-

ing stage, he was in general saved. It commenced its attack with a pain in the muscles of the neck, shoulders, legs, or arms, through which a warm aura seemed to creep ; after these symptoms a profuse perspiration broke forth. The internal organs grew gradually hot and burning, the pungent heat extending to the extremities ; with an intolerable thirst, sickness soon followed by jactitation, coma, and delirium. At Shrewsbury it raged for seven months, and carried off upwards of one thousand patients. The invasion of this terrific disorder was generally preceded by a thick noisome fog, especially in Shropshire. A dark cloud usually took the lead, and the distemper followed its course. It is somewhat singular, but most fatal contagions have been ushered in, both in ancient and modern times, by noxious fogs or mists, with clouds of various insects, either bending their course in innumerable bodies, covering vegetation, or falling in dead heaps upon the ground. The disease was generally supposed to arise from inclement harvests and injured grain ; particularly wheat infested with the mildew or smut, or rye attacked with the spur. It was observed by Dr. Willan, that the contemporary inhabitants of Scotland and Wales, who fed on barley and oats, were not affected.

One of the most singular features of this malady was its only attacking the English. Foreigners, and even the Scotch and Irish, in Eng-

land, seemed to be exempted from this scourge, which attacked the monarch himself, and two Dukes of Suffolk, who sunk under its virulence. In Westminster the number of daily deaths averaged one hundred and twenty. It may be easily imagined that this special liability of Englishmen to contract the disease was attributed to Divine wrath for their manifold offences; and we find the following lines in Phemtophius :

“ Cœlestia numina nobis
 Nil sunt quàm nugæ, fabula, verba, jocus :
 Indè fames nobis, pestes, Mars ; denique fontem
 Hinc etiam inclemens ἰδοωνρετος habet,
 Sævum, horrendum, atrox genus immedicabile morbi,
 Nostræ perfidiæ debitum.”

Dr. Armstrong has also recorded this peculiar visitation in the following :

Some, sad at home, and, in the desert, some,
 Abjur'd the fatal commerce of mankind.
 In vain : where'er they fled, the Fates pursued.
 Others, with hopes more specious, cross'd the main,
 To seek protection in far distant skies ;
 But none they found. It seemed, the general air
 From pole to pole, from Atlas to the East,
 Was then at enmity with English blood ;
 For, but the race of England, all were safe
 In foreign climes ; nor did this Fury taste
 The foreign blood which England then contained.

That the atmosphere was saturated by this disease was obvious from the circumstance of vast numbers of birds falling dead, when, upon

examination, pestilential swellings were found under their wings. Schiller attributed the disease to sidereal influence. England, however, was not the only country where the wrath of Heaven was considered as having fulminated this scourge; and at Marburg it had such an effect, that it actually put an end to the violent disputes between Luther and Zuingle concerning the Eucharist, and which were on the eve of kindling a religious war.

A disease somewhat similar manifested itself in Picardy in 1773, having first appeared at Hardivilliers, five leagues from Beauvais; but, instead of terminating in a single day, it ran on to the third, fifth, and seventh: a fever of the same description was also observed in Gascony.

But of all the maladies that affect cutaneous transpiration, *diapedesis*, or sweating of blood, is the most singular; so much so, indeed, that its existence has been doubted, although several well authenticated cases are on record, both in the ancient and modern annals of medicine. It is mentioned by Theophrastus and Aristotle, while Lucan thus describes it:

Sic omnia membra

Emisere simul rutilum pro sanguine virus.

Sanguis erant lacrymæ: quæcumque foramina novit

Humor, ab his largus manat cruor: ora redundant,

Et patulæ nares; sudor rubet; omnia plenis

Membra fluunt venis: totum est pro vulnere corpus.

The base Charles IX. of France sunk under

this disorder, thus described by Mezeray : “ La nature fit d'étranges efforts pendant les deux dernières semaines de la vie de ce Roi. Il s'agitait et se remuait sans cesse; le sang lui rejaillait par les pores et par tous les conduits de son corps. Après avoir longtems souffert, il tomba dans une extrême faiblesse et rendit l'ame.” The same historian relates the case of a governor of a town taken by storm, who was condemned to die, but was seized with a profuse sweating of blood the moment he beheld the scaffold. Lombard mentions a general who was affected in a similar manner on losing a battle. The same writer tells us of a nun who was so terrified when falling into the hands of a ruthless banditti, that blood oozed from every pore. Henry ab Heer records the case of a man who not only laboured under diapedesis, but small worms accompanied the bloody secretion.

In the Memoirs of the Society of Arts of Haarlem, we read of the case of a sailor, who, falling down during a storm, was raised from the deck streaming with blood. At first it was supposed that he had been wounded, but, on close examination, the blood was found to flow from the surface of the body. Fabricius de Hilden mentions a case that came under the observation of his friend Sporlinus, a physician of Bâle; the patient was a child of twelve years of age, who never drank anything but water: having gone out into

the fields to bring home his father's flocks, he stopped upon the road, and, contrary to habit, drank freely of white wine. He shortly after was seized with fever. His gums first began to bleed, and soon after an hæmorrhage broke out from every part of the integuments, and from the nose. On the eighth day of the malady he was in a state of extreme debility, and the body was covered with livid and purple spots, while every part from whence the blood had exuded was stopped with clots. A case is also related of a widow of forty-five years of age, who had lost her only son. She one day fancied that she beheld his apparition beseeching her to relieve him from purgatory by her prayers, and by fasting every Friday. The following Friday, in the month of August, a perspiration tinged with blood broke out. For five successive Fridays the same phenomenon appeared, when a confirmed diapedesis appeared. The blood escaped from the upper part of the body, the back of the head, the temples, the eyes, nose, the breast, and the tips of the fingers. The disorder disappeared spontaneously on Friday the 8th of March of the following year. This affection was evidently occasioned by superstitious fears; and this appears the more probable from the periodicity of the attacks. The first invasion of the disease might have been purely accidental; but the regularity of its subsequent appearance on the stated day of the vi-

sion may be attributed to the influence of apprehension. Bartholinus mentions cases of bloody sweat taking place during vehement terror and the agonies of torture.

The case of Catherine Merlin, of Chamberg, is well authenticated, and worthy of being recorded. She was a woman of forty-six years of age, strong and hale. She received a kick from a bullock in the epigastric region, that was followed by vomiting of blood : this discharge having been suddenly stopped by her medical attendants, the blood made its way through the pores of various parts of her body, every limb being affected in turn. The sanguineous discharge was invariably preceded by a prickly and itching sensation ; frequently this exudation proceeded from the scalp. The discharge usually occurred twice in the twenty-four hours ; and, on pressing the skin, the flow of blood could be accelerated and increased.

Dr. Fournier relates the case of a magistrate who was attacked with diapedesis after any excitement, whether of a pleasurable or a painful nature.

A singular idiosyncrasy was transmitted to her male children by an American female named Smith, occasioning a severe hæmorrhage wherever the skin was slightly pricked or scratched. This loss of blood would sometimes continue for several days. Several of her sons sunk under the affection, which was found at last to yield to the

sulphate of soda. What is most singular, all her daughters were exempted from this fearful predisposition.

It is probable that this strange disorder arises from a violent commotion of the nervous system, turning the streams of blood out of their natural course, and forcing the red particles into the cutaneous excretories. A mere relaxation of the fibres could not produce so powerful a revulsion. It may also arise in cases of extreme debility in connexion with a thinner condition of the blood.

Curious cases are recorded of a sandy sweat, in which the perspiration becomes crystallized on the surface of the skin. Bartholinus, Schunig, and Mollenbroek have related several cases of the kind. It is probable, as Mason Good observes, that this morbid secretion may arise from an excess of uric acid, translated from the kidneys to the skin; this sand is generally of the same red colour as that of the renal secretions deposited in a lateritious sediment.

Scented perspiration is another singular peculiarity. This odour, frequently unpleasant, has also been known to shed a pleasing aroma, compared to the perfume of violets, roses, and musk. This quality is common in various animals; in the *Simia jacchus*, hedgehogs, hares, serpents, and crocodiles. The *Viverra zibetha* and *V. civetta* yield this odour abundantly; and it has been observed in a faint degree in our domestic cat.

Many insects exhale an agreeable odour; especially the *Cerambix moschatus*, the *Apis fragrans*, the *Tipula moschifera*. The *Cerambix suaveolens* emits a delicious smell of roses, and the Petiolated sphex a highly fragrant balsamic ether. In the Memoirs of the Queen of Navarre, we read that Catherine de Medicis was a perfect nosegay; and Cujacius and Lord Herbert of Cherbury were equally distinguished by the suavity of their transpiration.

The general perspiration of every man seems to be of a peculiar nature. Savages can distinguish their friends and foes by the scent. The boy born deaf and dumb, whose history is related by Dugald Stewart, distinguished persons by their odour; and the dealers in hair can ascertain by the smell the nation to which the hair belongs.

The quantity of perspiration secreted by a well-grown adult weighing about one hundred and forty-six pounds, is at the rate of twenty-eight ounces in the twenty-four hours, sixteen ounces during the period usually allotted to waking, and twelve ounces during sleep.* It is not so much increased by moderate elevation of temperature as might be imagined; it appears increased after meals and during sleep. While the skin thus secretes so considerable a quantity of watery fluid, its powers of absorption are wonderful, and are frequent-

* The matter of insensible perspiration is calculated at being daily equal in weight to one half of the food.

ly resorted to for medicinal purposes. This absorption evidently tends to assist in repairing the strength. A boy at Newcastle, who had been greatly reduced for a race, gained thirty ounces in weight in the course of an hour, during which time he had only taken a glass of wine. Dr. Home, after going to bed much fatigued and supperless, gained two ounces before the morning. Keill says that one night he gained eighteen ounces in his sleep. Immersion in water and damp air materially increases this power. Frogs, toads, even lizards, increase in weight although only partially dipped in water; and remarkably so if previously deprived of part of their moisture by exposure to air. The power of absorbing medicinal substances when immersed in their solution has been demonstrated by Dr. Massy, an American physician, who found that if the body was immersed in a decoction of madder,* this substance immediately tinged the renal secretion. Dr. Rousseau made a similar experiment with rhubarb. It is now clearly demonstrated that friction is not necessary to produce absorption.

The keenness of the deaf and dumb boy in ascertaining the effluvium of various individuals, to which I have alluded, induces me to give a short sketch of this curious individual. His name was James Mitchell; and having no other source

* Madder, when given to animals, tinges the surface of their bones with a red hue.

by which he could discover or keep up a connexion with surrounding objects than those of smell, taste, and touch, he depended chiefly upon the first, like a domestic dog, in distinguishing persons and things. By this sense he identified his friends and relations; and conceived a sudden attachment or dislike to strangers. It was difficult, however, to ascertain at what distance he could thus exercise this faculty; but, from Mr. Wardrop's observations, it appears that he possessed it at a considerable distance. This was particularly striking when a person entered the room, as he seemed to be aware of this before he could derive any information from any sense than that of smell. When a stranger approached him, he eagerly began to touch some part of the body, commonly taking hold of his arm, which he held near his nose; and, after two or three strong inspirations through the nostrils, he appeared to form a decided opinion concerning him. If it were favourable, he showed a disposition to become more intimate, examined more minutely his dress, and expressed in his countenance more or less satisfaction; but if it happened to be unfavourable, he suddenly went off to a distance, with expressions of carelessness or disgust.

SMALL-POX.

THE first description we have of this dreadful disease is to be found in the writings of Almanzor of Rhazes, published about the end of the ninth or the beginning of the tenth century. He, however, quotes an Alexandrian physician of the name of Aaaron, who had treated the same subject so early as the year 622. There is no substantial ground to warrant a belief that it was known to the Greeks or Romans. The opinion of Hahn, who considered it to have been their anthrax, is absurd. Had this pestilence prevailed amongst the ancients, and left the traces of its ravages,—which have marked most fearfully so many individuals,—it is probable that these impressions would have been attached to their names, as they were in the habit of designating many of their illustrious personages by their physical peculiarities, either natural or accidental. Hence we find Ovidius *Naso*, Tullius *Cicero*, Horatius *Cocles*, Scipio *Nasica*, Curius *Dentatus*.

The term *variola*, which this disease bears, was first applied to a malady presenting the same symptoms, by Marius bishop of Avenches, and

appears to be derived from *varius*, spotted. However, to whatever region we may be indebted for this scourge, it appears that it existed in Asia, and especially in China, long before its introduction into Europe. About the middle of the sixth century, it was supposed to have been carried from India to Arabia by trading vessels, where no doubt the Arabian and Saracenic armies introduced it into the Levant, Spain, and Sicily. In 640, under the caliphate of Omar, the Saracens spread the contagion over Syria, Chaldæa, Mesopotamia, Egypt, and Persia. Its appearance in Europe may be referred to the eighth century. In the ninth century, as I have stated, we find it described by the Arabian physicians. In the tenth century we find it described by other Arabian writers, chiefly Avicenna and Hali Abbas. In 962, Count Baudouin of Flanders died from its attack. It appears certain that it prevailed in Gaul long before; we find in the works of Marius, already mentioned, the following passage: "Hoc anno (570) morbus validus, cum profluvio ventris et *variolis*, Italiam Galliamque valdè afflixit." About the same period we find Dagobert and Clodobert, sons of Chilperic, falling victims to the disorder; and Austregilda, wife of Gontran King of Burgundy, died of it in 580, at the age of thirty-two, so enraged with her physicians, Nicholas and Donet, that she insisted that they should accompany her to

the other world to reward them for causing her untimely end. Her affectionate and disconsolate husband Gontran of course had both their throats cut upon her tomb.

In the eleventh and twelfth centuries we find the small-pox in all the southern parts of Europe. The north was for a long time tolerably exempted from the scourge, until the Holy War introduced it into those regions; and it appears to have been the only trophy that the English and Germans brought home to commemorate their exploits in the Crusades.

In the thirteenth century the Muscovites, Laplanders, and Norwegians were free from the disorder, the progress of which seemed to have been delayed by the cold; although at the same time, according to the relation of Gordon, it was most destructive all over France. Most physicians at this period partook of the opinion of the Arabians, who considered the disease as being in the blood, thrown by it into a state of ebullition, particularly in childhood and youth. According to the Arabian Auaron, or Ahron, it sometimes affected the same individual twice. This doctrine of the boiling up and bubbling forth of the blood to throw out its peccant qualities, tended not a little to increase the mortality and exasperate the disease; as the physicians, to encourage this concoction, were in the habit of wrapping up their patients in warm clothing, and keeping

their apartments as hot as possible;—a fatal practice that subsequent experience has rejected as destructive.

In 1517 the Spaniards carried it to St. Domingo, nearly depopulating the country. South America soon received this additional visitation, said to have been carried amongst them by a negro. So terrific were the ravages of this pestilence, that the Americans considered its invasion as one of the *data* in their melancholy chronicles. The brother of the noble Montezuma was one of its earliest victims: worthy attendant on the Spanish banners, it accompanied their detested bands in all their conquests.

The northern districts of America were free from the contagion, when the English carried it with their commercial productions amongst the natives of Boston in 1649, and subsequently to Virginia and Carolina, and the remaining provinces. The Spaniards infected Nootka Sound, and the Russians desolated Kamtschatka about the same period.

Inoculation appears nearly as ancient as the disease, if we can credit the missionaries, who were sent into China by the Church of Rome, and who, from their address and insinuation, gained access to their historical records: they have transmitted detailed accounts of the history of the Chinese, and of their knowledge in various branches of science. There is a memoir written

on the small-pox by the missionaries at Peking, the substance of which is extracted from Chinese medical books, and especially from a work published by the Imperial College of Medicine, for the instruction of the physicians of the empire. This book is entitled *Teou-tchin-fa*, or a treatise from the heart to the small-pox; which states that the disease was unknown in the very early ages, and did not appear until the dynasty of Tcheou, which was about 1122 years before Christ. The Chinese name for the malady is a singular one, *Tai-tou*, or venom from the mother's breast: and a description is given of the fever, the eruption of the pustules, their increase, flattening, and crusting. In the same Chinese book there is also an account of a species of inoculation discovered seven centuries previously; but, according to a tradition, it had been revealed in the dynasty of Long, that is, about 590 years before Christ. Father d'Entrecolles, the Jesuit, mixes, in his correspondence from China, some information respecting the small-pox, which confirms the material part of the above information; for he notices having read some Chinese work which mentions the small-pox as a disease of the earliest ages. He also describes a method of communicating the disease, which was called *sowing the small-pox*; this was generally performed by planting some of the crusts upon the nose,—an operation

which was approved of by some, but disapproved by others.

Although the tradition of the small-pox being a disease originally transmitted to man by camels may be fanciful, yet the existence of the vaccine in cows might give some probability to its having been the case. Moore thus expresses himself on the subject: "This notion probably took its rise from the circumstance that land commerce from Egypt to India was only practicable by means of this animal. But such kind of traffic was tedious and difficult, and it is conjectured that no person known to have the small-pox would ever have been suffered to join himself to a caravan." Now this observation would rather confirm the fact than invalidate it; since, if no individual affected with the malady could have carried the contagion, the disease might have been spread by their camels.

In regard to the antiquity of the practice of inoculation amongst the Chinese, I cannot do better than give Mr. Moore's own words on so very interesting a subject. "No account is handed down of the origin of this custom; but the reverence in which agriculture is held by the Chinese may have suggested the name (sowing of the small-pox), and the usual manner of performing the operation: for they took a few full dried small pox crusts, as if they were seeds, and planted them

in the nose ; a bit of musk was added in order to correct the virulence of the poison, and the whole was wrapped up in a bit of cotton to prevent it dropping from the nostrils. The crusts employed were always taken from a healthy person who had had the small-pox favourably ; and, with the vain hope of mitigating their acrimony, they were sometimes kept in close jars for years, and at other times fumigated with salutary plants. Some physicians beat these crusts into powder, and advised their patients to take a pinch of this snuff ; and when they could not prevail upon them, they mixed it with water into a paste, and applied it in that form. In Hindostan, if tradition may be relied upon, inoculation has been practised from remote antiquity. The practice was in the hands of a particular tribe of Brahmins, who were delegated from various religious colleges, and who travelled through the provinces for this purpose. The natives were strictly enjoined to abstain during a preparatory month from milk and butter ; and, when the Arabians and Portuguese appeared in that country, they were prohibited from taking animal food also. These were commonly inoculated on the arm ; but the girls, not liking to have their arms disfigured, chose that it should be done low on the shoulder : but whatever part was fixed upon was well rubbed with a piece of cloth, which afterwards became a perquisite of the Brahmin. He then made a few slight

scratches on the skin with a sharp instrument, and took a bit of cotton, which had been soaked the preceding year in variolous matter, moistened it with a drop or two of the holy water of the Ganges, and bound it upon the punctures. During the whole of this ceremony, the Brahmin always preserved a solemn countenance, and recited the prayers appointed in the *Attharna Veda*, to propitiate the goddess who superintended the small-pox. The Brahmin then gave his instructions, which were regularly observed. In six hours the bandage was to be taken off, and the pledget allowed to drop spontaneously. Early next morning, cold water was to be poured upon the patient's head and shoulders, and this was to be repeated until the fever came on. The ablution was then to be omitted; but, as soon as the eruption appeared, it was to be resumed and persevered in every morning and evening till the crusts should fall off. Confinement to the house was absolutely forbidden; the inoculated were to be freely exposed to every air that blew; but when the fever was upon them, they were sometimes permitted to lie on a mat at the door. Their regimen was to consist of the most refrigerating productions of the climate; as plantains, water-melons, thin gruel made of rice or poppy-seeds, cold water, and rice.

While sowing the disease was thus prevalent in some countries, selling and buying it was adopted

in others, when children bartered fruit in exchange for the infection. It does not appear that the faculty took any notice of inoculation until the year 1703, when Dr. Emmanuel Timoni Alpeck wrote an account of his observations in Constantinople, in a letter to Woodward: a Venetian physician, of the name of Pylamus, about the same time noticed the success of the practice in Turkey. Lady Mary Wortley Montagu pursued the enquiry in her voyage to that country, and, on her return to England in 1722, had the operation tried with successful results on her daughter. Still, although two of the princesses of the royal family had also been inoculated with equal benefit, inoculation was furiously opposed by the profession; and so successful was this opposition, that it succeeded in bringing it into disuse both in England and throughout Europe. In this virulent controversy, a singular circumstance was observed: while regular practitioners stated the practice to be unsuccessful, whenever it was adopted by quacks, monks, and old women, the result was invariably favourable; and the report that reached Europe of a Carmelite friar having inoculated thousands of Indians, an old woman being equally fortunate in Greece, while at the same time a planter in St. Christopher's inoculated three hundred persons without the loss of a single patient, the practice was again resumed, chiefly in our sea-ports, and gradually extended over

the country. Mead materially assisted its progress by stating that the Circassian ladies chiefly owed their beauty to this salutary preservative. In the year 1763, Daniel Sutton, son of a surgeon in Suffolk, recommended the practice, modified, however, in the treatment of the malady, and brought inoculation into general repute.

It appears, however, that inoculation was by no means a novel introduction even in England, as it had been long practised in Pembrokeshire and several parts of Wales. On the Continent it had been tried at Cleves. Bartholinus mentions it as adopted in Denmark; and traces of its adoption were evident in Auvergne and Perigord.

Various modes of performing this operation were adopted. The Arabians inserted the virus with a pointed instrument between the thumb and the index; the Georgians on the fore-arm; and the Armenians on the thigh. The traveller Motraye mentions a Circassian old woman who used to inoculate with three pins tied together. It appears that this practice was generally prevalent in Turkey in 1673. Trinoni and Pilarini observed that the natural small-pox was generally fatal in Constantinople, while the disease produced artificially was most benign. Bruce relates that from time immemorial inoculation was practised in Nubia by old Negresses or Arabs.

Strange to say, it was only in 1727 that inoculation became general in France; and its adoption

was materially forwarded by Voltaire, who also took special care to acquaint the fair sex that it was to this practice that the Circassian and Georgian odalisks owed their beauty.

The terrific mortality that attended this disease was much increased by the injudicious treatment to which patients were submitted. Instead of adopting the natural plan resorted to by eastern nations, and allowing the patients a free current of air, with a refrigerant diet, cordials and a hot regimen were enforced, under which the disorder soon assumed a destructive malignity. Cold affusion, which has also been extolled by modern physicians as a recent improvement in medical practice, we have seen, was also employed centuries ago. Sutton, who is generally, but erroneously, considered as being the introducer of inoculation, did nothing more, as I have already observed, than modify the treatment of the disorder. Thus do we daily see impudence and quackery receiving rewards for supposed discoveries, and the keepers of the public purse on such occasions seem much less careful of it than of their own. In our days, for instance, chain-cables have been decreed a discovery, and their inventor entitled to a national recompense, whereas we read the following passage in Cæsar's Commentaries, when speaking of the shipping of the Gauls,—“*Anchoræ, pro funibus, ferreis catenis revinctæ:*” any schoolboy could have given this information to our sapient legislators.

GENERATIVE ANIMALCULES.

MICROSCOPIC experiments daily demonstrate the existence of myriads of animalcules in every substance. They have recently been discovered in the progress of certain crystallizations ; and some philosophers maintain that most inorganic bodies are formed of the remains of organic substances. The existence of animalcules in the generative secretion was first noticed by Lewis Hamme, a young German student, and shown by him to Leeuwenhoeck, who published an account of them. Hartzoeken wrote upon the subject the following year, and asserted that he had seen these animalcules three years before they had been observed by Hamme. This curious subject soon attracted the notice, not only of physiologists, but of priests, artists, and even courtiers, for we find our Charles II. making curious enquiries on this investigation. Although many opticians could not discover these creatures, the eyes of courtiers were more keen than theirs, and, to gratify their royal master's depravity, described these most minutely. Their length was $\frac{1}{100000}$ of an inch, their bulk such as to admit the exist-

ence of 216,000 in a sphere whose diameter was the breadth of a hair, and their rate of travelling nine inches in the hour. They saw them in the seminal secretion of every animal; and, what was still more remarkable, they were of a similar size whatever might have been that of the animal: they saw them in the sprat and in the whale; they could distinguish the male from the female; and they all moved along in gregarious harmony like a flock of sheep: nay, more; Dalenpatius actually saw one of them, more impatient than his companions, burst from his ignoble shackles, and actually assume the human form. At other times they were discovered swimming in shoals to given points, turning back, separating, meeting again, and frisking about like golden fish in a pond. Kauw, Boerhaave, Maupertius, Lieuland, Ledermuller, Monro, Nicholas, Haller, and indeed most of the philosophers of Europe, were convinced of their existence.

Buffon, however, and other naturalists, contended that these were not animalcules, but organic particles; and Linnæus imagined them to be inert molecules, thrown into agitation by the warmth of the fluid. Finally, to determine the question, Spallanzani began an assiduous course of observations and experiments. He found these animalcules in the human species to be of an oval form, with a tail tapering to a point. This appendage, by moving from side to side,

propelled them forward. They were in constant motion in every direction. In about twenty-three minutes their movements became more languid, and in two or three hours they generally died. The duration of their life, however, seemed to depend, in a great measure, on the temperature of the medium: at 2° (Reaumur) they died in three quarters of an hour; while at 7° they lived two hours, and at $12\frac{1}{2}^{\circ}$ three hours and three quarters. If the cold was not too intense, they recovered upon the temperature being raised; when only 3° or 4° , they recovered after a lethargy of fourteen hours; and according to the less intensity of the cold, they might be made to pass from the torpid to the active state more frequently. They were destroyed by river, ice, snow, and rain water; by sulphur, tobacco, camphor, and electricity; even the air was injurious to them: in close vessels their life was prolonged to some days, and their movements were not constant and hurried. They were of various sizes, and perfectly distinct from all species of animalcules found in vegetable infusions, &c. In short, Spallanzani completely confirmed the principal observations of Leeuwenhoeck, and satisfactorily explained the sources of the inaccuracies of other enquirers. Prevost and Dumas have recently confirmed the observations of the Italian physiologist.

This doctrine of life being perpetuated by the

transmission of animated particles, or animalcules, is by no means of modern date. We find this theory advanced by Hippocrates, and Aristotle, and Plato. Democritus described worms that assumed, in the progress of their developement, the human form ; and Lactantius thus refuted his ideas: “Erravit ergo Democritus, qui vermiculorum modo putavit homines effusos esse de terrâ, nullo auctore, nullâque ratione.” Hippocrates plainly says, that the seminal secretion was full of animalcules, whose several parts were developed, and grew afresh ; that nothing did exist that had not pre-existed ; and that what we term birth was nothing more than that transition of these hitherto imperceptible animalcules from darkness to light.

Gesner has endeavoured to prove that the word *ψυχή*, so frequently found in the writings of Hippocrates, and translated *anima*, was synonymous with *insectum*, *animalculum*, *papilio*. Plato, when expressing himself on this curious subject, compares the matrix to a fertile field, in which animalcules are gradually developed, at first of such a small size that they are imperceptible, but, by taking the food prepared for them, grow in strength until they are brought to light in a state of perfect generation ; and St. Augustine thus follows: “Hunc perfectionis modum sic habent omnes ut cum illo concipiantur atque nascuntur ; sed habent in ratione, non in mole, sicut

ipsa jam membra omnia sunt latenter in semine ; cùm etiam natis nonnulla desint, sicut dentes, ac si quid ejusmodi.” In the works of Seneca we also find the same notions : “ In semine omnis futuri hominis ratio comprehensa est, et legem barbæ et canorum nondum natus infans habet ; totius enim corporis, et sequentis ætatis, in parvo occultoque lineamenta sunt.”

It may be said that these opinions were similar to those of the *Ovarians*, who, as we have observed already, believed that everything arose from the egg. Such were Aristotle, Empedocles, and other philosophers : “ For the egg is the conception,” said the first of these great men, “ and after the same manner the animal is created ;” but there was a manifest difference in their systems. Harvey, Haller, De Graef, were amongst the most warm advocates of this doctrine, which indeed prevails to the present day, as it would be difficult to find organised beings that did not spring from an original germ.

It thus appears that, notwithstanding the absurd doctrines of generation being founded upon the existence of these animalcules, they clearly do exist. Modern microscopic experiments daily confirm the fact ; not only in the generative secretion, but in the other fluids of the body : creatures of an inch to an inch and a quarter in length have been found to inhabit the mesenteric arteries of asses and horses. Mr. Hodgson found them in

seven asses out of nine. They have also been found in the blood of female frogs, salamanders, and tadpoles. What wonders are perhaps in store for the microscopic observer and the physiologist! All living matter seems to be animated by particles, by atoms, equally possessed of life. Does the vitality of these constituent molecules hold any influence over our existence? Is their life necessary to the preservation of ours? Is any agency destructive to them injurious or destructive to us? In a former paper I have recorded recent observations, where animalcules of a peculiar description were found in the purulent secretion attending various affections. A morbid condition seems thus to produce a new series of animated beings, or this new series of living atoms perhaps have produced a morbid state. Many eruptive maladies are either caused by the presence of insects, or insects are subsequently developed in their pustules. Wichmann, and many other physicians, have maintained that the itch was produced by an insect of the genus *acarus*, or *tick*.

Latreille has given a minute description of this creature in his *Genera crustaceorum et insectorum*, and calls this offensive species the *sarcoptes scabiei*. Linnæus classed it among the *aptera*, and termed it the *acarus scabiei*. This insect is nearly round, with eight legs; the four fore-legs terminated with a small head, the hind ones with

a silky filament. The Arabian Avenzoar had long since observed them, and it was from his writings that Mouffet was induced to pursue the enquiry. Redi, an Italian physician, was the first propagator of this doctrine in modern times, and published, in 1685, a paper of Cestoni of Leghorn, who had frequently observed mendicants and galley-slaves extracting these insects from the pustules of itch with the point of a pin, in the same manner as *chigoes* are extracted from their cyst in the West Indies.

It was this communication of Cestoni that led to a further and more minute investigation. Curiosity was everywhere excited, and the most learned and intelligent naturalists and physicians, amongst whom we find the illustrious names of Borelli, Etmuller, Mead, Pringle, Pallas, Bonani, Linnæus, Morgagni, strove with incessant diligence to ascertain this important fact, which certainly was likely to shed a new light on our pathological speculations. The existence of the *acarus* was established.

The most conclusive experiments on the subject were those of Galès, in 1812. The following is the account of them: "I placed under a microscope a watch-glass with a drop of distilled water, after having carefully ascertained that it did not contain any visible animalcules. I then extracted from an itch pustule a small portion of the virus, which I diluted in the water with the

point of a lancet. I watched most attentively for upwards of ten minutes, without having been able to notice any animation. Two similar experiments were equally ineffectual. Disappointed in my expectations, I was about giving up the task, when an idea struck me of submitting the liquid of the first experiment to another trial. I had left it in the watch-glass, exposed to solar heat. I then was not a little surprised when I discovered a perfect insect struggling with its legs to extricate itself from the viscid fluid that confined it. Having succeeded in reaching a more limpid part of the liquor, its form was so distinct that Mr. Patrix, who was with me, was enabled to take an exact drawing of its configuration."

This curious result naturally induced Galès to pursue his enquiries, and he discovered that this insect chiefly occupies the pustules that are filled with a thin serum, and avoids those that contain a thicker secretion. Hence the watery pimples in itch are invariably those that produce the most intolerable prurience.

The next important question was to decide whether this insect was the cause of the disgusting disorder. For this purpose Galès placed several of them on the back of his hand. He then covered the part with a small watch-glass, kept in place with a bandage. Three hours after he awoke, experiencing a sensation of itching on the part. The

following morning three itch pustules were evident, and convinced him that he had succeeded in inoculating himself with the loathsome complaint. This fact he communicated to Olivier, Duméril, Latreille, and Richerand. Experiments in the hospital were immediately directed to be made, and all produced a similar result; affording a convincing proof that these insects could produce the affection, which they had merely been thought to have complicated.

Many writers, who, like Mason Good, had decided that "whenever these insects appear, they are not a cause but a consequence of the disease," opposed and contradicted the statement of Galès, and the numerous practitioners who had procured and witnessed facts, which are never stubborn things to speculative minds. These writers maintained that whenever any organ was weakened, or in a morbid condition, it was apt to become a nidus for some insects or worms to burrow in. Hence the numerous varieties of invagination in debility of the digestive organs. But it is needless to observe that their objections cannot stand against the embodied evidence brought forward in proof of their error. Bosc, Huzard, Latreille, Duméril, and many other naturalists, subsequently found these acari in the eruptive diseases of many animals.

I repeat it, this subject is replete with interest; and microscopic experiments may some time or

other throw a material light on the practice of medicine. Those substances that are known to destroy the insect that produces the itch, cures the malady. May not this analogy lead to singular results?

CIRCULATION OF THE BLOOD.

THE circulation of the blood was first taught by the unfortunate Servetus, in 1553, who was burnt to death as a heretic; and, a century afterwards, demonstrated by our Harvey, who is justly considered as having discovered the wonderful mechanism of the motion of the vital fluid.

There is no doubt, however, that the ancients had formed, if not a correct, at least an ingenious, idea of it. Hippocrates tells us “that all the veins communicate with each other, and flow from one vessel into others; and that all the veins that are spread over the body carry a flux and movement originating in a single vessel. He avows that he is ignorant of the principle whence it arises, or of its termination, it appearing to be a circle without beginning or end. He further states, that the heart is the source of the arteries, through which blood is carried over the body, communicating life and heat; and he adds, that they are so many rivulets that irrigate the system, and carry vitality into every part: the heart and veins are in constant motion; and he compares the circulation of blood

to the course of rivers, that return to their source by extraordinary deviations. He therefore directs blood-letting to restore a free current of the blood and other spirits in apoplexies and other diseases of a similar nature, which he attributed to obstruction in the vessels intercepting the flow of their contents. He also observes, that when bile enters the blood, it deranges its consistence, and disturbs its ordinary course towards another point: and he compares the circulation to balls of thread, the threads of which return to each other in a circuitous manner, terminating at the point whence their motion arose.

Plato thought that the heart was the source of the veins, and of the blood, that was rapidly borne to every part of the body. Aristotle tells us that the heart is the principle and source of the veins and of the blood. He considered that there were two veins proceeding from this organ, one from the left side, the other from the right; the first he termed *aorta*: and he further maintained that the arteries communicated with the veins, with which they were intimately connected.

Julius Pollux taught, in his *Onomasticon*, that the arteries are the channels through which the spirits circulate as the veins propel the blood; and he describes the heart as having two cavities, one communicating with the arteries, and the other with the veins. Apuleius tells his disciples that the heart propels the blood through the

lungs, to be afterwards distributed over the system.

In the writings of Nemesius, bishop of Emisa, we read that the movement observed in the pulse originates in the heart, chiefly from the artery of the left ventricle of the viscus. This artery is dilated, and then contracted, by a constant and powerful harmonious action. When dilated, the vessel draws towards it the most subtile portions of the neighbouring blood, and the vapour or exhalation of this fluid, that feeds the animal spirits; but, when it contracts, it exhales, through various channels of the body, all the vapours that it contains.

Michael Servetus, in his work *De Christianismi restitutione*, also in the 7th book, *De Trinitate Divinâ*, for which he was sentenced to the stake a very short time after its publication, gives us the following description of this important function. The blood, which is a vital spirit, is diffused all over the body by *anastomoses*, or inosculation of two vessels through their extremities. The air in the lungs contributes to the elaboration of the blood, which it draws for that purpose from the right ventricle of the heart through the pulmonary artery. This blood is prepared in the lungs by a movement of the air that agitates it, subtilises it, and, finally, mingles it with that vital spirit which is afterwards retransmitted to the heart by the movement of the

diastole, as a vital fluid proper to maintain life. This communication and preparation of the blood, he further states, is rendered evident by the union of the arteries and veins in this organ; and he concludes by affirming that the heart, having thus received the blood prepared by the lungs, transmits it through the artery of the left ventricle, or the aorta, to every part of the body.

Great care was of course taken to destroy this abominable heretical publication, which was burnt by the common hangman in Geneva, Frankfort, and several provinces of France. The work thence became so scarce, that it is said only three or four copies of it are in existence. One of them was in the library of the Landgrave of Hesse-Cassel.

John Leonicensus relates that the celebrated Paul Sarpi, otherwise named Fra Paolo, had also discovered this circulation, and demonstrated the valves of the veins, which open to afford a free passage to the blood, and close to prevent its return. This discovery, it is pretended, was made known to Fabricius ab Aquapendente, professor of medicine in Padua in the sixteenth century, and successor of Fallopius, and who communicated the fact to Harvey, then a student in that university.

Some time before Harvey's discovery, Cesalpinus had described with great precision the pulmonary circulation; and, on finding that veins swelled

under a ligature, he attributed this enlargement to the warmth of the blood. This warmth, he says, proceeds from a spirit residing in the blood. The left ventricle is filled with blood of a spirituous nature; and one can trace the movement of the blood towards the superior parts, and its return (*retrocessus*) to the internal ones,—that is to say, a return by which it comes back from the extremities to the heart, when awake or sleeping, from every part of the body; for if you tie the vessels, or if they are obstructed, the current of the blood is stopped, and then their smaller ramifications tumefy towards their origin. The following are his words: “*Sic non obscurus est ejusmodi motus in quâcumque corporis parte, si vinculum adhibeatur, aut aliâ ratione occludantur venæ: cùm enim tollitur permeatio, intumescunt rivuli quâ parte fluere solent.*” From these expressions it is clear that Cesalpinus suspected the great circulation, and had a fair idea of its nature; yet there is no doubt but that it was to our Harvey that the first demonstration of this wondrous function was reserved.

DRUNKENNESS.

AT all periods this degrading vice appears to have been more or less prevalent. We find it frequently mentioned in the early history of the Jews. Tacitus informs us that it was common amongst the ancient Germans; and in Greece and Rome it was not only common, but frequently extolled as beneficial—as medicinal :

*Si nocturna tibi noceat potatio vini,
Horâ matutinâ rebibas, et erit medicina.*

Socrates considered indulgence in wine pardonable. Thus, C. Gallus :

*Hoc quoque virtutem quondam certamine, magnum
Socratem palmam promeruisse ferunt.*

According to Horace, Cato the Censor had often recourse to its exhilarating virtues :

*Narratur et prisci Catonis
Sæpe mero incaluisse virtus.*

Seneca informs us that even the Roman ladies frequently indulged in these potations. The drunkenness of the ancients bore all the disgusting character of the present day, and was thus admirably described by Lucretius :

Cum vini penetravit—

Consequitur gravitas membrorum, præpediuntur
Crura vacillanti, tardescit lingua, madet mens,
Nant oculi; clamor, singultus, jurgia gliscunt.

However, from the language of the ancients, we cannot come to the conclusion that Socrates, and other great men who were accused of inebriety, were habitual drunkards, or even that, under the influence of their potations, they were occasionally deprived of their reason. On the contrary, there is every reason to believe that the ancients both ate and drank a great deal during their repasts; and thus mingling their wine and their food, like most of the Continental nations, they were less subject to the inconveniences that arose from their indulgence in liquor. Indeed, the term sobriety applies to a proper regulation of our ingesta, according to our constitution and our state of health. Abstinence on some occasions may prove as prejudicial as intemperance; and there are peculiar idiosyncrasies where a certain quantity of stimulus is absolutely requisite to keep up the animal spirits, and at the same time assist assimilations which become languid under mental depression. No doubt, this necessity has arisen from habit, — most probably a very bad habit; still, when it does exist, physicians should be cautious in suddenly forbidding habitual indulgences: we must also consider on such occasions the pursuits of different individuals. The labo-

rious classes, who require more frequent refec-
 tion, from the constant exhaustion to which their
 avocations expose them, can bear with impunity
 a moderate use of strong liquors. Such a practice
 would destroy the sedentary and the studious.
 Temperance is essentially requisite to perfect not
 only our intellectual faculties, but many of our
 physical functions. The senses both of man and
 of the brute creation are rendered much more
 keen by abstinence. The scent of the dog, the
 vision of the hawk, are less acute after feeding;
 and this is one of the chief causes of the greater
 perspicuity in our ideas when fasting in the morn-
 ing. The ancients had an axiom founded upon
 observation, “*If you wish to become robust, eat and
 labour; if you wish to become wise, fast and medi-
 tate.*” The Greeks called sobriety, σωφροσύνη;
 or, according to Aristotle, as though they said,
 σωζουσιν την φρονησιν, it assisted our intellectuals.
 Plato tells us that Socrates termed this quality,
 σωτηριαν της φρονησεως, or the health of the mind.
 Xenophon maintained that it prevented men from
 spitting or blowing their noses, as we were not
 in need of superfluities when we decreased the
 consumption of what was necessary. The an-
 cients looked upon sobriety as a bent bow, that
 required occasional relaxation.

It is said, but I know not on what authority,
 that Hippocrates recommended an indulgence in

potations once a month. Celsus recommends persons in perfect health not to be too rigorous in their diet; sometimes to fast, and at others to live more freely. In more modern times this supposed precept of Hippocrates has been advocated, and we find two theses on the subject entitled "*Non ergo singulis mensibus repetita ebrietas salubris*," and "*Non ergo unquam ebrietas salubris*," by Hammet and Langlois. Zacchias, in his medical questions, asks if a physician can recommend such a departure from the laws of temperance without committing a sin. This query has been also debated by divines. Frederic Hoffmann maintained that poets required this indulgence, and attributes in a great measure the falling off of genius amongst the modern Greeks to the destruction of their vineyards by the Turks: In ancient iconography we oftentimes find Bacchus placed near Minerva. The allusions of heathen mythology to drunkenness, its effects, and the means of tempering its influence, are curious. Silenus, the preceptor of Bacchus, although represented as always intoxicated, was a philosopher, who accompanied his pupil in his Indian expedition, and aided him by the soundness of his judgment. Virgil makes him deliver the principles of the epicurean doctrines on the formation of the world, and the nature of things. Ælian gives us his conversation with Midas regarding the unknown

world of Plato and other philosophers. He was also considered an able warrior and a wit. Ælian derives his name from *Sillainein*. The nymphs who follow his train were considered as typical of the water necessary to dilute his potations, and the influence of love in checking intemperance.

Montaigne informs us that the celebrated Sylvius recommended an occasional debauch; and the late Dr. Gregory was of opinion that an occasional excess is, upon the whole, less injurious to the constitution than the practice of daily taking a moderate quantity of any fermented liquor or spirit. Experience, however, does not uphold the doctor's opinion; and, as I have observed in a preceding article, occasional excesses are far more injurious than habitual indulgences, under which, in the most unfavourable climates, men attain advanced years. An occasional excess actually brings on a state of sickness, which, in persons habitually sober, may not only last for several days, incapacitating them from any pursuit, but be frequently followed by serious accidents. Of course I am not alluding to a constant state of intoxication, which will often bring on delirium, tremor, apoplexy, and other destructive accidents.

The appearances after death in drunkards exhibit great derangement in organic structure.

The brain is generally firmer than usual. Serum is not unfrequently found effused in its cavities; and, what is singular, this watery fluid is often impregnated with the odour of the deceased's potations, such as rum, gin, or brandy. Schraeder relates several instances of the kind. Æther has also been detected after the medicine had been freely exhibited. Dr. Ogston states that above four ounces of fluid were found in the ventricles of a drunkard's brain, that had all the physical qualities of alcohol. He thinks that this effusion takes place previously to the coma of intoxication, as he found it in considerable quantities in two cases of drowning in the stage of violent excitement from spirituous liquors. The mucous coats of the stomach of drunkards, instead of being "worn out," according to the vulgar expression, are thickened, and sometimes softened; but in most cases they are found hardened. This condition is not likely to accelerate death; on the contrary, the stomach is less susceptible of the action of stimulating articles of diet, or excess in eating or drinking, than when in a healthy state of excitability. When drunkenness proves fatal, it appears that a portion of the spirituous part of the liquor is actually absorbed and carried into the circulation and the brain. Dr. Copeland has given the following very luminous and correct view of the pathology of drunkenness. "During

the general nervous and vascular excitement consequent on the stimulus, increased determination to the head takes place, attended by excited vascular action, which soon terminates in congestion as the excitement becomes exhausted, and gives rise to drowsiness, sopor, and coma. With this state of the disorder effusion of serum takes place in the ventricles and between the membranes, heightening the sopor and coma. When the congestion or effusion amounts so high as to impede the functions of the organs at the basis of the encephalon and of the respiratory nerves, respiration becomes unfrequent and laborious, and consequently the changes produced by it on the blood insufficiently performed. In proportion as the blood is less perfectly changed in the lungs, the circulation through them is retarded, and the phenomena of asphyxy,—congestion of the lungs, right side of the head, brain, and liver; the circulation of unarterialised blood; the imperfect evolution of animal heat, and sedative effects upon the brain and nervous system generally,—follow in a more or less marked degree, according to the quantity of the intoxicating fluid that has been taken, and either gradually disappear after some time, or increase until life is extinguished. These phenomena are heightened by cold, which depresses the vital action in the extremities and surface to which it is applied, and increases the con-

gestion in the above organs. The fatal consequences of intoxication are often averted by the occurrence of vomiting, the stomach thereby being relieved from a great part of the poison."

In the accidents that follow intoxication, bleeding has frequently been resorted to. Nothing can be more hazardous than this practice, justly condemned by Darwin, Trotter, and most physicians, who have had frequent opportunities of witnessing the distressing train of symptoms that inebriety brings on. Coffee and green tea will be found the most efficacious antidotes, when no sickness prevails. Nausea is counteracted by effervescent and aromatic draughts, such as soda-water, (so highly appreciated by Byron, when accompanied by a sermon, after a night's conviviality,) spruce-beer, Seidlitz powders, &c. The ancients had recourse to various means to counteract the effects of wine, and amongst others we find olives and olive oil, wormwood, saffron. The Greeks used a solution of salt, a common remedy among sea-faring men to the present day ; and the Romans surrounded their heads with wreaths of various refreshing plants. When Aristotle tells us that Dionysius of Syracuse remained in a state of intoxication for eighty days, we must suppose that he got drunk every morning.

That the ancients were in the habit of diluting their wine with water, there cannot be a doubt.

The Lacedæmonians accused those who drank it pure of acting like Scythians,—an expression introduced ever since Cleomenes the Spartan had learned to drink freely amongst them. The Thracians were also accused of this practice, which clearly proves that it was not general. Philochorus reports that Amphictyon king of Athens learned to mix wine and water from Bacchus himself, on which account he dedicated an altar to the god. According to Athenæus, this dilution was of various strength; sometimes in the proportion of one to two, at others of one to five. The Lacedæmonians used to boil their wine till the fifth part was consumed, under the impression that they thus deprived it of its spirituous qualities. Sometimes this boiled wine was laid by for four years.

To add to the intoxicating power of wine various means were resorted to, and a mixture of myrrha was supposed to produce this effect. Such was the *murrhina* of the Romans, mentioned in St. Mark's gospel, and which was given to malefactors before their execution.

Notwithstanding the sobriety of the ancients, my fair readers may perhaps be glad to know that the ladies were allowed to indulge in an occasional stoup; and the Greek matrons and virgins were by no means restricted in a moderate use of the grape's delicious juice, as illustrated by Homer in Nausica and her companions. In the ancient

entertainments the first libation was offered up to Vesta, as being, according to Cicero, *rerum custos intimarum*, or keeper of things most concealed; or, according to Aristocritus, for the services rendered by this goddess to Jupiter in his war against the Giants. However, without any erudite comments, it is very probable that the poor Vestals were sometimes delighted when they could take a drop of wine to beguile their solitude.

DECAPITATION.

As I have observed in a preceding article, much doubt exists whether decapitation puts an end to our sufferings, as it has not, and most probably will never be ascertained, whether the body or the head are first deprived of sensation or vitality. Galvanic experiments had been resorted to, but were warmly opposed by Professor Ferry on the plea of humanity, as he maintained that unless we were certain that sensation had ceased, we had no right to submit the unfortunate culprits who had been decapitated to this trial. Guillotin (whose name was given to the terrific machine so closely connected in our recollection with the horrors of the French Revolution, which he introduced from the East and Germany) maintained that the moment the head was severed from the body all sensation ceased. Cabanis and Petit were of a similar opinion. Sue, Aldini, Mojon, Weicard, Livelings, Castel, and other physiologists, founded their belief in a contrary doctrine, upon numerous experiments on various animals. Sue grounded his arguments upon two chief points : first, the sudden effect produced by decapitation upon the two most powerful regula-

tors of the functions of life, the brain and the heart; and secondly, on the consideration that the section of the neck was often uneven and jagged, splinters of bones irritating the bruised nerves, vessels, and spinal marrow.

According to this view of the matter, existence was not immediately destroyed by decollation. Castel thought that this principle was extinguished in the head sooner than the body. Sue and Julia de Fontenelle were of a different opinion. Dubois of Amiens endeavoured to prove the non-existence of pain after decapitation, by showing that convulsive movements, epileptic and hysteric attacks, were not accompanied by any painful sensations. In decapitation, he thinks that the suddenness and violence of the blow must produce insensibility, for we cannot imagine that the section of the spinal marrow thus violently performed can occasion pain; and if any sensations were experienced in that awful moment, it is more than probable that the violent perturbation would render them obtuse. As to any feelings of the separated head, he does not think that any muscular convulsions observed in it can indicate the existence of pain.

To these arguments of the Amiens physiologist Julia de Fontenelle replied that it was never maintained that convulsive movements were expressive of pain, although it was not impossible that epileptic and hysterical patients may have

experienced painful sensations during their attacks that might be forgotten upon their recovery, as somnambulists bear no recollection of what passed during their disturbed slumbers. The convulsive affections alluded to by Dubois were frequently expressive both of pleasure and of pain, or marked with a character of stupor or of indifference, whereas the convulsive movement observed in the features of the decapitated invariably expressed anguish; in support of his firm belief in the existence of the power of sensation after execution, he refers to the observations of Soemmering, Mojou, and Sue, who had remarked that when the head was turned towards the solar rays, the eyes instantly closed,—a phenomenon that could not take place if the eyes were dead. Dr. Montault justly observes that it is to be regretted that, to decide this controversy, recourse cannot be had to the experiment, recorded by Bacon, of an inquisitive person who hanged himself for the purpose of ascertaining if strangulation was a painful operation. One of his friends very fortunately cut him down ere it was too late, when the curious experimentalist was quite satisfied that hanging was by no means painful or unpleasant, and that the moment strangulation took place, he had been struck with a flickering light, that was instantly followed by utter darkness.

Various cases are recorded of individuals thus cut down, when hanged by accident, or executed.

In most instances they stated that they had experienced a pleasurable sensation as strangulation took place. I have already alluded to the curious fate of the well-known composer of the "Battle of Prague."

MUMMIES.

MANY are the opinions relating to the custom of embalming men and various animals in ancient Egypt. By some it has been considered a superstitious practice, by others the result of affection. To keep the remains of those we loved upon earth free from the destructive power of death, and preserving in some degree those forms that once flitted before us and around us in all the enjoyments of life, is a natural, one might almost say an instinctive, sentiment ;—preserving those fond remains upon earth, exempted from the painful sight of beholding them committed to the earth—earth to earth—for ever ! How different must have been the feelings of the relatives of the departed when, leaving his body reposing in his tomb, still preserving the form of its mortal coil—still in the world—where all we loved might be visited and spoken to in the language of affection and regret—how different must have been these feelings when compared to those that compress the respiration and check our utterance, after seeing that body separated from us, and leaving a chasm around us deeper still

than the grave. We are, however, to seek in this practice other motives. The wisdom of the theocratic government of ancient Egypt was most admirable, and not founded upon mortal affections and dislikes. The sovereign priesthood had to attend to concerns of greater magnitude. The first inhabitants of Egypt, migrating most probably from the upper regions of Ethiopia, had to colonize an unhealthy region, to struggle with swamps and marshes, and destroy myriads of animals, whose decomposition added to the dangers they had to encounter when settling in such an unhealthy land. Pestilence, no doubt, as in after times, frequently desolated the infant kingdom. Their priests, in whose temples were recorded in mystic legends all the science of the age, must have applied their experience and their judgment to meet the evil, and surmount it, were it possible. The ideas of corruption are closely connected with those of putrescency ; and putrescency has ever been considered the chief source and focus of pestilential maladies. To avoid corruption and putrescence, then, became one of the most important Hygienic studies ; and, like Moses, who had received his early education in Egypt, its priesthood enforced salutary laws as the injunction of the Creator ; nor was the task as difficult as it might have proved in a more extensive and more diversified region. The population resided in a land of no

very great extent ; their climate did not vary according to prominent topographical circumstances ; and the produce of the soil, as regarded alimentary substances, admitted of little variety. Thus it became easy to establish salutary institutions to regulate the mode of living of the obedient people, who looked upon the commands of their sainted legislators as dictates from the eternal throne.

Amongst other prophylactic means to resist epidemic diseases, the embalming of the dead must naturally have occurred to the sacred college as one of the most effectual means of checking or preventing contagion. Not only was man submitted to this process, but every animal, domestic or obnoxious, was equally preserved. It may be said, if destruction was rendered a prudent step, why were not these bodies consumed by fire ? The reason appears to me obvious. It was necessary to check the consumption of animal food ; therefore were various animals considered sacred, and not allowed to be immolated for the use of the multitude ; other animals were considered noxious, and as such their use was forbidden. Religion thus stamped them with the irrevocable dye of holiness or corruption. Mystic characters were traced upon their remains. The holiness of these animals sometimes varied in different districts, and the ibis was venerated where the serpent was disregarded. When we contemplate the thousands

of crocodiles in the caverns of Samoun, the myriads of the ibis in the desert of Hermopolis, Antinoë, Memphis,—when we behold even the eggs that were destined to perpetuate their race thus preserved,—had not these animals been thus respected, they would have become the food of the inhabitants, and, both from their abundance and their unwholesome qualities, have added to the frequent scourges that desolated the land.

The priesthood of Egypt sought not their power in terror, but in affection and gratitude. They strove to convince the people that they were their true friends and real benefactors; their sole study was their welfare, their greatest pride the nation's prosperity. Gratitude appeared to be the sentiment they most sought to inculcate. The serpent was held in veneration, because it destroyed noxious vermin; the ibis was respected from the same motive; the crocodile for the protection it afforded their navigable waters; yet, by one of those strange anomalies that we find in most mythological *reveries*, animals were held sacred, although they constantly destroyed other sacred creatures; and while the crocodile was worshipped, the ichneumons that destroyed its eggs were also entitled to respect. Here again we find that this anomaly was unavoidable: those myriads of animals, from the nature of the climate and the soil, would have increased to such numbers as to overrun the land. What was to be

done? Had they been considered edible, most unquestionably they would have been devoured as food; it therefore became necessary to destroy and embalm them: this destruction was no doubt inculcated as a religious duty; otherwise, how should we find, even to the present day, such myriads of these creatures, preserved through the lapse of ages, with their very eggs,—another proof that even their incubation was checked. Placed between the desolate desert and the sea, numerous must have been the races of animals who sought refuge in this wondrous region; and, as Lagasquie observes, in the Necropolis of Alexandria and Memphis, at Arsinoë, Charaounah, Achmin, Beni-Hacan, Samoun, Hermopolis, Thebes, and in innumerable hypogean monuments, we find the remains of thousands—nay of millions—of ibises, crocodiles, cats, rats, dogs, jackals, wolves, monkeys, serpents, nay, fishes of various kinds.

The Egyptian priests were wise. The moment the practice of embalming the bodies of men and animals ceased, pestilence appeared; and Dr. Pariset thus expresses himself on this most interesting subject: “At the period when Christianity was introduced into Egypt, the new religion had to encounter many obstacles in overcoming the obstinate prejudices of the ancient creed. During the four first centuries of its propagation, the ancient customs were persevered in;

at last the cross triumphed and was enthroned, and the practice of embalming was abolished. In 356, St. Anthony, upon his death-bed, anathematised it as sacrilegious: his last injunction, according to St. Athanasius, his historian, had such an effect, that an injudicious zeal prevailed in Rome, in Constantinople, and other large cities, and led to the practice of inhuming bodies in churches and cemeteries, notwithstanding the prohibition of the magistracy." While the dead were interred in towns, or their vicinity, in dwelling-houses and gardens, the remains of animals were scattered abroad to become part of the soil, and thus this most dangerous innovation hurried on the developement of the most dangerous of diseases. In 1542, under Justinian, Egypt was avoided as the focus of pestilence. It would be difficult to point out the exact period when the custom of embalming ceased; but it had ceased to be practised at the time when pestilence burst forth over the land in all its irresistible horrors. The coincidence was too remarkable not to have been noticed.

It is certainly true that the plague had visited Egypt at former periods, recorded in holy writ, when we know not to what extent the preparation of mummies might have been carried, although we find that Jacob was embalmed; but when we consider the topography of Egypt, presenting a vast plain exposed to a yearly inunda-

tion, its soil preserved for centuries from the admixture of animal substances, but of a sudden changed into a mass of corrupted bodies of men and animals, acted upon by heat and moisture,—when the inhumation of man was neglected, and the offals of animals accumulated in pestilential heaps,—we may easily imagine what a luxuriant field was submitted to the scythe of death.

The Egyptians had, no doubt, introduced the practice of embalming the dead from Ethiopia, a country abounding in various gums, which served them to preserve the remains of their relatives. The transparency of these substances had induced some travellers to assert that the bodies were imbedded in glass, like insects found in amber. De Pau, and many other writers, have exposed the absurdity of such a report, since it is more than probable that glass was scarcely, if at all, known amongst them. The Persians enveloped their dead in wax ; and the Scythians sewed them up in skins.

While the foresight and wisdom of the Egyptian sacerdotaly was thus distinguished by Hygienic institutions, their interests were not neglected ; and the art of embalming, which they monopolised with every other branch of learning, tended not a little to add to their emoluments. Every dead body was their property. Herodotus tells us, that if the corpse of an Egyptian, or a stranger, was found in the Nile, or cast upon its

banks, the priests alone had the power to touch it, and afford it a sepulture. This interesting, although not very veracious author, gives the following account of the process. There are in Egypt a particular class of people whose sole business consists in embalming bodies. When a corpse is shown them, they exhibit models of mummies depicted upon wood. These models are of three kinds, and vary in prices. The bargain being concluded, the embalmers commence their labours. The brains are first extracted through the nose with a crooked iron instrument; an incision is then made in the side of the body with a sharpened Ethiopian stone, through which the viscera are drawn. These are cleansed out, washed in palm wine, and then strewed with pulverised aromatic substances. The abdomen is stuffed with powdered myrrha, cinnamon, and other perfumes, but without incense. After these manipulations, the body is sewn up, and salted with natrum for seventy days. This period elapsed, the corpse is again washed, and swaddled up with rollers of linen, covered with gum, which the Egyptians commonly use instead of glue. The relations, after this operation, carry home the body, and place it in a wooden case resembling the human form; afterwards locking it up in chambers destined for the purpose, and placing it upright against the wall. This is the most expensive process. The next is more economical. Sy-

ringes are filled with an unctuous fluid, extracted from the cedar ; this liquor is thrown into the body through an incision performed in the side, and is of such a nature that it gradually corrodes and destroys the viscera : after the body has been duly salted, nothing then remains but the bones and skin, which this substance does not affect.

Diodorus Siculus gives an account somewhat similar, but adds some curious particulars. The first class of funerals cost a silver talent ; the second twenty minæ ; and the third scarcely anything. The embalmers divide their labours into various offices. The first, or the scrivener, points out the part of the body on the left side where the incision is to be made. The next operator is the incisor, who uses for the purpose a sharp Ethiopian pebble. The viscera are then drawn out, with the exception of the heart and kidneys ; and the body is then washed with palm wine and aromatics. The corpse is afterwards inuncted with the gum of cedar, and strewed with myrrha, cinnamon, and various spices. It is ultimately returned to the family of the deceased, in such preservation that the eyebrows and eyelids are uninjured, and the countenance preserves the character that distinguished it during life.

Porphyrius informs us that the embalmers, after having extracted the intestines, exposed them to the sun, putting up a prayer to that luminary,

and declaring that if the deceased had ever been guilty of any act of gluttony, the intestines alone were guilty, and they were therefore cast into the Nile. Plutarch alludes to a similar ceremony. The *incisor* appears to have been considered a degraded being, for Diodorus tells us, that, after the operation, he was pursued by the relations of the defunct, and pelted with stones, as having polluted the remains of the dead.

These accounts of the ancients have been warmly impugned by modern antiquaries, who maintained that the various substances stated to have been made use of in the process of embalming, did not possess the qualities attributed to them, — especially the liquor called *cedria*, drawn from the cedar-tree. Rouyer, a member of the Egyptian commission of sciences and arts, corroborates in a great measure the accounts of ancient historians; and, in a very interesting paper on the subject, we find that the bones of the nose are destroyed in some mummies, but left intact in others,—a circumstance that would lead us to think that on such occasions the brain was left in the cranium. The opening in the side did not appear to have been sewn up, but the lips of the incision merely brought into apposition. He divides mummies into those in which tanno-balsamic substances had been introduced, and those that had merely been salted. The first species were found stuffed either

with aromatic resinous substances, or asphaltum and pure bitumen. These resinous substances emitted no odour, but, when cast into the fire, a thick smoke arose, and a strong aroma became evident. The mummies thus preserved were light, dry, and fragile; preserved their teeth, their hair, and eyebrows. Some of them had been gilded all over; in others, the gold had only been applied to the face, the hands and feet, and other parts. This practice of gilding was so general, that it does not warrant the belief that it was only the remains of the illustrious and wealthy that were thus ornamented. These mummies, so long as they were kept in a dry place, were unaltered; but were soon decomposed, and emitted an unpleasant effluvium, when exposed to atmospheric moisture. The mummies thus prepared were of an olive colour, while those preserved with bituminous substances were of a reddish tinge; the integuments hard and shining, as if varnished. The features were not altered, and the cavities were filled with a black, hard, and inodorous resinous substance. The ingredients thus employed were similar to the bitumen of Judæa; most of them were gilded.

Other mummies were found without any lateral incision, when, most probably, the intestines were drawn out through the rectum. These cavities were filled with the substance termed by historians *Pisasphaltus*. In the mummies merely cured

with salt, when this ingredient is abundant, the features are obliterated, the surface of the body having been smeared with bitumen. These mummies, which of course are the remains of the poorer classes, are the most common. They are heavy, hard, and black, and shed an unpleasant odour. They boast of no gilding; only the palms of the hands, the soles of the feet, and the nails, had frequently been decorated with a red tinge; most probably by the application of the *henne*. These were the mummies which were sold by the Arabs in former times for medicinal purposes.

For a further description of the mode of enveloping the bodies, I must refer to the valuable labours of Mr. Pettigrew. The process of embalming appears to have consisted simply in extracting the viscera, or destroying them by some corrosive injection; dissolving the mucous and fatty matter by the long application of natrum; and, finally, in desiccating the corpse by exposure to air or stoving.

Mummies have been also found in the Canary islands, where they were named by the Guanchi *xaxos*. They were light, dry, of a yellow colour, shedding a slight aroma, and carefully enclosed in goat-skins. The operation was also performed with a sharpened Ethiopian stone, called *tabona*. Humboldt found numerous mummies in Mexico, where desiccated bodies have not unfrequently been seen in the open air.

Certain soils appear to possess a preservative quality, without any apparent preparation having been made use of. In the catacombs of Bordeaux and Toulouse, these dried bodies may be seen, the hair and eyebrows still intact ; but they are dark and shrivelled, and it does not appear that the contents of the cavities had been extracted or heeded,—the process of desiccation being general. The miraculous conservation of bodies recorded by Calmet in his *History of Vampires* was nothing more than instances of a similar preservation.

Various experiments have proved that the progress of chemistry has been so great, that we might equal the Egyptians in the preparation of mummies, if ever such an absurd practice were introduced.

HYDROPHOBIA.

THIS term has been erroneously applied to the disease arising from the bite of a rabid animal, since many instances are recorded of mad dogs not only drinking freely of water and other fluids, but actually swimming across rivers; while, on the other hand, the horror of water has attended maladies totally unconnected with rabid injuries: Sauvages plainly expresses himself on this subject. “Apud Gallo-provinciales, experiëntiâ, canes luposque rabidos bibisse, munducasse, flumen transnasse, ut olim Maralogis et bis Forolivii observatum, adeoque nec cibum nec potum aversari.” Dr. James relates the case of a mad dog that drank both milk and water, and swam through a pond. Similar cases are related of mankind.

This disease was known to the ancients, and the Greek term for rabies was *lyssa*, referred to several times by Homer, when Hector is compared to a mad dog by Teucer and Ulysses. It was also known by the name of *cynolisson*, *phobodipson*, and *hygrophobia*. According to Plutarch, the disease was first observed in the time of Asclepiades. Cœlius Aurelianus is the most cor-

rect of the ancient writers on the subject. This disease, although it may appear in every climate, is far less common in hot regions than in those of a moderate temperature. In the West Indies it is unknown; nor has it been observed in South America. In Egypt and Syria it has never been observed. Mr. Barrow informs us that at the Cape of Good Hope, and amongst the Caffres, their dogs are exempt from the malady, although constantly fed upon putrid meat.

Water-dread has been observed in various rheumatic and inflammatory affections, and frequently arises in a spontaneous manner; while many cases are recorded of the alarming symptoms being witnessed when no rabid bite has been inflicted. Violent passions, both in men and animals, seem to impart a peculiar acrimony to the saliva. Meekren, Wolff, Zacutus Lusitanus, mention fatal cases after the bite of a man in a passionate fit. Le Cat gives a case of death produced by the bite of an enraged duck. Thiermayer gives us two fatal cases of the bite of a hen and a goose, and Camararius has an instance of epilepsy produced by the bite of a horse.

Of the cause of this disease we are utterly ignorant: thirst, without the means of quenching it,—the use of putrid food,—sultry weather, have been considered as producing the fearful disorder; but no one instance is recorded that can justify the opinion. The streets of Lisbon are

crowded with dogs, feeding upon disgusting offal, under a burning sky, yet rabies is scarcely ever observed among them. It is more probable that certain mental emotions, such as anger and fear, have a peculiar influence on the animal. All the aggregate symptoms of the disease show that the nervous system is disturbed; and the singular effect of confidence in the treatment of persons bitten by a rabid animal, confirms the fact. This is further proved by many cases of hydrophobia unconnected with rabid bites. Marcel Donat relates the case of a woman who complained of pains in the neck and right arm, with constant trembling. In three days the pain ceased, but the tremor continued; a sense of suffocation followed, which was attended with a horror of water and every liquid, although the throat was burning. In five days she died in excruciating agonies, but preserving her senses until the last. Kœhler saw a young soldier, who, having fallen asleep against a stove, was suddenly awakened with a sensation of intense thirst, which he quenched with a draught of cold water. Hydrophobia immediately ensued, and the next day terminated his existence. Selig relates the case of a man at Neukirchen, who was attacked with all the alarming symptoms of this malady after having laboured in the fields on a very hot day, and bathed in the river. The following day he was affected with violent rheumatic pains, which

shortly ushered in an intolerance of fluids, and inability of swallowing. In the course of twenty-four hours he expired. It appeared upon inquiry that a year before he had purchased from the hangman of the town some dog's grease, to rub himself to relieve some troublesome affection; and it was stated that the dog had been killed by a gamekeeper, who suspected him of being mad.

Cases of plague have been attended with water-dread. Lalius Diversus saw a woman labouring under the epidemic, who was thrown into agonies when she even saw other persons drinking. Sarcotius, in his history of the epidemic diseases of Naples, informs us that the fever was invariably attended with hydrophobic symptoms. The fever that prevailed at Breslau in 1719, presented the same peculiarity.

Various venomous substances have also been known to give rise to this disease. Professor Brera, of Pavia, witnessed it after the use of stramonium. Rancid oils have caused similar accidents. In regard to the causes that produced madness in dogs, various experiments have been made, particularly in the Veterinary School of Alfort: one dog was fed with salted meat, and totally restrained from drinking; another was allowed nothing but water; and the third was not allowed food or drink of any kind. The first died on the forty-first day; the second on the

thirty-third; and the third on the twenty-fifth; not one of them evincing any symptoms of rabies.

It appears that a peculiar predisposition renders some individuals more subject to the accidents that follow the bite of rabid animals than others. Mr. Hunter gives an instance in which, out of twenty persons who were bitten by the same dog, only one received the disease. It appears, however, that this virus is less volatile than most others, and is capable of remaining in a dormant state for a very long period; and if we are to give credence to many reports on the subject, it may linger in the system for several years. At other times, its destructive nature has proved immediately injurious. Heisler has given a case where a man was affected by merely putting into his mouth the cord by which the mad dog had been confined. Palmarius relates the case of a peasant, who, in the last stage of the disease, communicated it to his children by kissing them. It has, however, been clearly demonstrated, that inoculation of rabid saliva does not propagate the distemper. Experiments were made both by Magendie and Breschet in 1813. In 1798, when a pupil in the Hôtel Dieu of Paris, I witnessed several experiments of the kind, and with similar results. At the same period, I had occasion to observe the effect of imagination in these cases. Several persons had been bitten by a rabid dog in

the Faubourg St. Antoine, and three of them had died in our wards: a report, however, was prevalent, that we kept a mixture that would effectually prevent these accidents; no less than six applicants were served with a draught of coloured water, and in no one instance did any accident ensue.

The period of the developement of the accidents after the bite in animals is various. According to Meynall, the disease appears amongst dogs from ten days to eight months after the injury. In the hounds of Earl Fitzwilliam, who were bitten in June 1791, the intervals varied from six weeks to six months. Dr. James made a similar observation in Mr. Floyer's pack.

No malady has been submitted to more curious and fearful modes of treatment than hydrophobia; and in many cases, such has been the dread of the disease, that patients have been smothered or drowned. Dioscorides seared the wound with irons heated to whiteness; other practitioners first excised the wounded part, and then applied fire or caustic. While fire was resorted to by some practitioners, water was recommended by others, and submersion in a river or a pond has frequently been urged as an effectual remedy. In the time of Celsus, the miserable sufferer was thrown without any warning into a fish-pond, alternately plunging his head under water and raising it; when the poor wretch could swim, he was forcibly kept im-

mersed until filled with water. After this experiment, which Celsus terms the *unicum remedium*, for fear that the patient might be attacked with convulsions, he was taken out of the pond, and soused in warm oil. Van Helmont recommended that the poor devil should be kept under water while the psalm *Miserere* was sung, and most probably the terrified choristers were not expeditious in their performance. Morin relates the case of a young woman, twenty years old, who was plunged in a tub of water, with a bushel of salt dissolved in it, and dipped repeatedly, until she became insensible; however, much to the surprise of the by-standers, who thought her dead, she recovered, and could not only look upon water, but was able to drink it. Bleeding nearly to death, mercury, cantharides, and various medicines, have been also called into aid; but none have appeared to prove effectual in curing this dreadful disorder. One of the most singular modes of treatment was the introduction of rabid blood into the system of the patient,—in fact, a homœopathic plan of Dr. Rithmeister of Powlowsk, in Finland, who has recorded several cases to prove that the blood of a rabid animal, when drunk, is a specific against canine hydrophobia. The doctor communicates a letter from Dr. Stockmann, a Russian physician, stating this practice to be both common and effectual in White Russia.

With a view of producing a fresh poisonous action that might neutralise the former one, it has also been proposed that a venomous serpent should be made to inflict a wound under the bite of the mad dog. I do not believe that this experiment has ever been tried ; and, as Good observes, the claim of ingenuity is, most probably, the only one it will ever have to receive. This fatal disease is enveloped in so much darkness, both as regards its causes and its treatment, that it may well be considered one of the opprobriums of the profession. The experiments of my late friend Sir David Barry are, however, of great importance ; and in many cases of poisonous wounds, the application of cupping-glasses has been followed by evident favourable results.

To ascertain the existence of rabies in animals, more especially in dogs, is a matter of great importance, as being frequently the source of moral depression or of sanguine hope, that may tend to increase or diminish the severity of the accidents ; one may apprehend madness in a dog when we see the animal dull, and seeking solitude and darkness, his sleep disturbed, and when awakened refusing food or drink. Its head droops, the tail hangs between the legs. The animal soon quits the abode of his master, the mouth secreting a viscid foam, the tongue pendulous and dry, the eyes bright and sparkling. His gait soon be-

comes uncertain; now precipitate, then slow and undecided. Impatient, and parched with a burning thirst, he cannot rest; and the sight of any fluid occasions an instinctive shudder. The rabid symptoms now become more violent; the animal will attack and bite other dogs, although much superior in strength. It is asserted that dogs avoid him with terror. On these occasions the fury of the animal is not to be controlled; all ties of attachment are dissolved; and his master is but too frequently the first victim of his indiscriminate rage. Hence the absurd popular notion that mad dogs inflict their first bite on those to whom they are attached,—a circumstance that simply can be attributed to the natural endeavours of a master to check the violence of a domestic creature whom he generally can control: mad dogs seldom bark, but express their angry uneasiness with a growl, which gradually becomes weaker, until the animal staggers, droops, and dies. Yet, as there may exist many maladies amongst animals in which these symptoms are observed,—to destroy them, as is usually the case, is a most absurd practice, since the individuals whom they may have bitten will sink into a fatal despondency; whereas, by allowing them to live, if they recover, it is evident that the patient will be easily persuaded that the dog was not in a rabid state.

The following cases, recorded by Dr. Perceval,

are curious instances of the dormant state of this fearful virus, the effects of which are accidentally developed.

A wine-porter was labouring under a low fever; after a time appeared some symptoms of hydrophobia, and much enquiry elicited the recollection of his having been slightly bitten by a dog six weeks before. In the interval he was convicted of some fraudulent practice in the cellar of his master, to whom he owed great obligation, and was dismissed with disgrace. Anxiety on this event seemed to produce the fever, which terminated in lyssa.

Lately an officer was bitten by a dog, whose madness being recognised, the bitten part was excised immediately: after an undisturbed interval of two months, he was advised to go to England to dissipate the recollection of the accident. There he exercised himself violently in hewing wood, felt pain in the hand which had been bitten, embarked for Ireland, had symptoms of hydrophobia on board the packet, and died soon after his arrival. From the varying period of attack, we might infer that the influence of occasional causes is very considerable. In the last patient, hydrophobia supervened exactly five weeks from the time of the bite: he lost one hundred and twenty ounces of blood in twelve hours, which sunk him much; violent perspiration, and at length delirium, attended the water-

dread; during the last twenty-four hours he swallowed, and recovered his senses; and died slightly convulsed, whilst cutting an egg. These cases seem to point out agitation of mind and feverish excitation as powerful occasional causes.

Hermann Strahl has recently related the following case of rabies in which the dog that had bitten the patient was not mad. In the month of January 1833, an inn-keeper was taken ill. The doctor found him dressed, and stretched upon his bed. He did not complain of any particular ailment, but loathed all food. He at last admitted that he experienced some difficulty in swallowing; and his mother having offered him a cup of tea, he refused it with a sense of horror, and his countenance immediately assumed a character of ferocity that terrified the by-standers. An apple having been given to him, he ate it without repugnance. It was now discovered that, five weeks before, he had been bitten by a dog he was training; and the wound was slow in healing. The dog was sought, and did not show the slightest sign of disease,—barking, playing, and drinking freely. In the evening the patient's case was aggravated; and it was with the utmost difficulty that he was made to swallow a spoonful of ptisan. The next day he was seized with a violent attack of rabies: seeing one of his sisters drinking, he fell into a furious rage, dashed a looking-glass to pieces, and

entreated his relatives to withdraw, as he otherwise would inevitably bite them. This outrageous paroxysm lasted half an hour; at its expiration he fell into a tranquil sleep. But at night he was seized with another attack; and he began to howl and imitate the barking of a dog, and commenced breaking everything in the room of a shining appearance. His sisters fled in dismay; but he seized his mother, a woman of sixty-five years of age, cast her on the ground, and bit her in the cheek. After this desperate act, he seemed to be struck with a conviction of what he had done, and became more tranquil; but, half an hour after, on entering his chamber, he was found dead, his head under the bed-clothes. His mother did not experience any accidents from the injury.

It is singular that, in this miserable condition, the patients will frequently show singular partialities; and, although repulsing any fluid offered to them by some individuals, will take it from others, and attempt, however vainly, to drink. In the Hôtel Dieu of Paris, a young girl, affected with hydrophobia, would only take a cup of ptisan from me; but with looks of inexpressible anxiety returned it to me, after having struggled to moisten her burning lips. At Boulogne, a postilion, bitten by a mad dog, was violent with every one but one of my nephews: from him he also accepted drink, although un-

able to swallow it ; before dying in excruciating agonies, he repeatedly asked for him, and begged that he might be sent for. He would not allow, even in his last moments, any other person to come near him ;—another striking instance of that unknown power of sympathy to which I have frequently alluded in the preceding pages.

THE END.

LONDON :
PRINTED BY SAMUEL BENILEY,
Dorset Street, Fleet Street.

